

Finland State of Logistics 2009



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Abstract <p>This Survey is commissioned by Ministry of Transport and Communications Finland. It is a continuation of similar surveys published in 1993, 1997, 2001 and 2006. The level of logistics in Finnish manufacturing, wholesale and retail and logistics firms is assessed through logistics costs, performance indicators, IT usage, competence, development needs, outsourcing and choice of location.</p> <p>2,705 firms’ responses were gathered through a web-based survey (manufacturing 37 %, wholesale & retail trade 29 % and logistics firms 34 %). Response rate was 10.2 %. It is the World’s largest database of its kind.</p> <p>Logistics is seen as an important source of competitive advantage for large and medium sized companies: Over 95 % consider it as important for customer service level and 92 % for profitability. Only 60 % of the companies regard logistics as a top management priority.</p> <p>Logistics costs were on average 14.2 % of the turnover (equivalent of 34.7 billion euros), which includes costs incurred outside Finland. The figure is high in international comparison. The figure is higher than in the 2006 Survey (13.0%), mainly because of higher transport costs. Firms’ internal logistics costs components were, on average, at a lower level in 2008 indicating improved logistics efficiency.</p> <p>Industry weighted logistics costs in 2008 were 34.7 billion €(26.4 billion in 2005), half of which were internal costs of the companies. Increasing share of the costs is created abroad. Related to GDP, logistics costs of Finnish companies are equal to 19 % of the Gross Domestic Product. Unlike in 2006, the cost level of large and medium sized companies exceeded the level of small and micro companies in this survey. The majority of differences in the cost level can be explained by the rising level of transportation costs in medium sized and large companies.</p> <p>The relative differences in companies’ opinions on the operating preconditions among the trading companies remained small. The differences in opinions between northern and southern parts of Finland among the manufacturing companies and logistics service providers increased. Financial indicators such as perfect order fulfilment and cash-to-cash cycle time are good among the manufacturing companies, whereas the indicators may even be regarded as excellent among trading companies, although the level of the indicators has decreased since 2005.</p>			
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CONCEPTS

3PL, 4PL	Third (fourth) party logistics services are functions performed by an external enterprise which cover the preparation for handling a minimum of several logistics services. Services are offered as an integrated whole rather than as separate units. Cooperation is intended to be long-term in character.
ATO	Production assembled on the basis of customer order (assembly-to-order)
EDI	Electronic Data Interface: data transfer between organizations
ERP	Enterprise Resource Planning: a system for operational control
ETO	Engineering-to-order: order-based production of client-based products
Extranet	An electronic data network that requires a password for entry, intended for those who are dealing with the organization
Intranet	The organization's internal electronic data network, which requires a password in order to gain access
International company	(here): the company has production operations outside Finland.
Medium-sized enterprise	The net sales of the business total EUR 10 – 50 million per year.
Domestic market firm	(here): over 90% of the company's sales are obtained from Finland.
Logistics	The management of the companies' material flows as well as their related capital and information flows between the companies functioning in the supply chains and supply networks.
LPI	Logistics Performance Index: the World Bank's comparison surveying the "ease" of logistics in 150 nations
Micro-enterprise	The net sales of the business total under EUR 2 million per year.
MTO	Make-to-order: order-based production
MTS	Make-to-stock: manufacture goes to warehouse
Small enterprise	The net sales of the business total EUR 2 – 10 million per year.
Large enterprise	The net sales of the business total over EUR 50 million per year.
Productivity	The ratio between yields and their investments achieved
Export company	(here): a minimum of 10% of the enterprise's sales come from outside Finland.

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PREFACE

The Ministry of Transport and Communications Finland (MINTC) is implementing an operational programme for the intensification of logistics, in accordance with the government programme. Business enterprises are responsible for the effectiveness and functionality of their logistics, but the public authority fundamentally affects the infrastructure as a producer, regulator of the markets and financier of training and research in the operational environment of logistics.

The reduction of logistics expenses is one of the goals of the Ministry. Accurate information on the condition of logistics for preparing decisions and measures is required. The state and costs of logistics in Finnish industry and commerce have been clarified previously in 1990, 1995, 2001 and 2006. New and useful data on the condition of logistics has been obtained from each clarification. These reports have been in demand, and have on their part increased competence in the field and accelerated development.

For the evaluation of current status and changes, this fifth logistics report was organized. In this report, in the manner of that conducted in 2006, the circumstances of small- and medium-sized enterprises as well as those of logistics-based service companies have been surveyed. Internationally speaking, this report is ostensibly the most comprehensive publication on its theme.

The work has been financed by the MINTC and carried out by Turku School of Economics (TSE). Tomi Solakivi has acted as project manager of the TSE Logistics research team comprising Juuso Töyli, Hanne-Mari Hälinen, Harri Lorentz, Karri Rantasila and Tapio Naula. The work has been coordinated by Professor Lauri Ojala.

I would like to thank all representatives of the companies who responded to the report questionnaire and participated in the interviews as well as the work meetings. In acquiring contact person information, the Finnish Association of Purchasing and Logistics (LOGY), Federation of Finnish Enterprises, Finnish Transport and Logistics SKAL and the Chambers of Commerce were in a decisive position. The contribution of the companies' specialists was a basic requirement in terms of the success of the report.

April, 2009

Chief Engineer

Jari Gröhn
Ministry of Transport and
Communications Finland

1 SUMMARY

Essential observations in brief:

- Logistics essential to the competitiveness of large- and medium-sized enterprises
- The rapid weakening of demand and rise in costs are now the most important risks
- Logistics costs from net sales 14.2%: this share has increased
- Transport costs have increased, internal logistic effectiveness has improved
- Logistics costs relative to GNP 19%, figure high by international comparison
- Improvement in customer service and reduction of costs are the most important development targets not only in industry but in the trading and logistics enterprises as well
- With regard to business prerequisites, the differences between Finland's south and other parts of the country have grown

Finland State of Logistics 2009 examines the status of logistics in Finland's business life and factors influencing the competitiveness of enterprises. The main emphasis is on logistics requirements and costs respective to industry, construction and commerce. The themes examined are 1) the significance of logistics to the firms, 2) logistics-related costs, 3) the key figures in logistics, 4) logistics-based information systems, 5) logistics know-how, 6) the logistics-based operational environment and 7) logistics-related outsourcing.

A total of 2,705 companies (37% representing manufacturing and building, 29% commerce and 34% logistics service enterprises) operating in Finland responded to the survey. The data represents, globally speaking, the widest scope available in their subject matter.

The significance of logistics to the standard of companies' customer service, profitability and competitive edge is very great, especially for medium-sized and large firms, regardless of field. The development of logistics does not, however, appear to be enough of a priority for top-level management. (Fig. 1)

Logistics costs for Finland's business life total, according to this report, approximately EUR 34.7 billion. Adjusted to GNP, this corresponds to 19 percent. In industrial countries, the corresponding figure is typically 10 – 17%.

Compared to the 2006 report, the share of logistics costs respective to companies operating in Finland has risen slightly. The proportion of transport costs has increased. The share of expenses connected with inventory holding and storage has remained the same, but with regard to the management of logistics it has declined somewhat.

The changes that have occurred in the operational environment have especially affected the logistics outlays of large Finnish companies functioning in international markets,

raising the costs even to exceed the cost level of smaller and domestically operating firms. This represents a change by reference to the previous report.

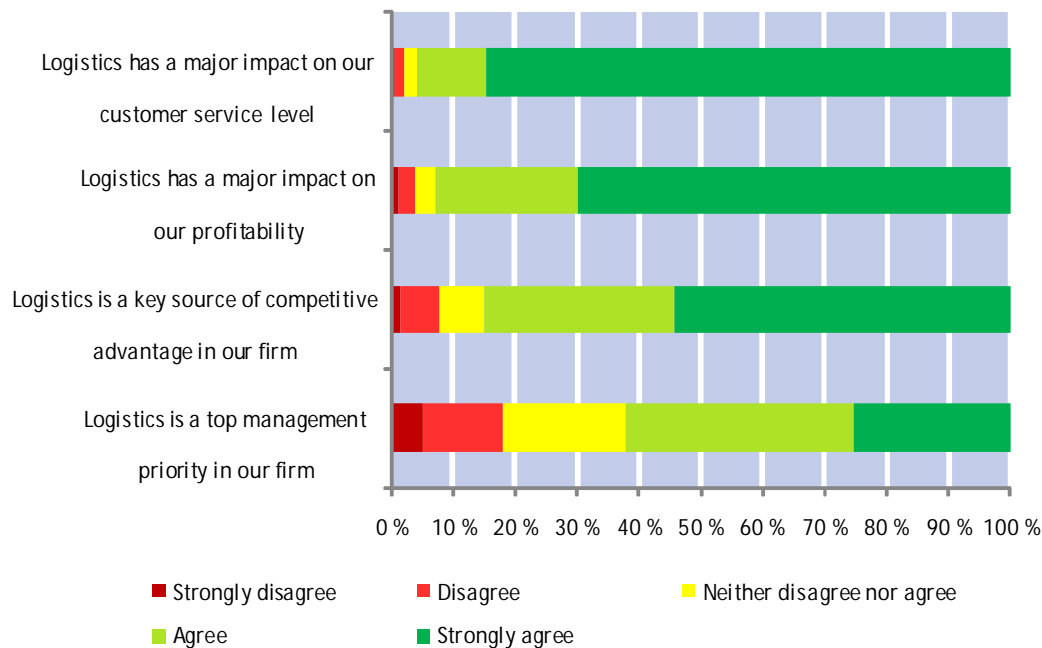


Figure 1 The significance of logistics to Finnish large and medium-sized trading and manufacturing enterprises (N=329)

On average, logistics costs totalled 14.2% of the net sales of Finnish enterprises in 2008. It should be noted that as companies become more international, a greater part of these costs are generated outside Finland.

Table 1 Pivotal key figures for Finland's logistics market (2009 prices)

Key figure/ year of comparison	1990	1995	2000	2005	2008
Logistics costs in manufacturing and trading	20.4 bn.€	16.4 bn.€	20.9 bn.€	28.2 bn.€	34.7 bn.€
Logistics costs as percentages of turnover	11.0 %	10.3 %	10.2 %	11.5 %	12.3 %
Transportation costs as percentages of turnover	4.8 %	4.7 %	4.5 %	5.0 %	6.3 %
Logistics costs as percentages of GDP	17-18%	14-15%	14-15%	17 %	19 %

Using the same method of comparison as in the 1990–2000 reports, the share of logistics expenses rose from 11.5% in 2005 to the value of 12.3% of companies' net sales in 2008. In the future, however, logistics costs will be examined by reference to the figures in this report.

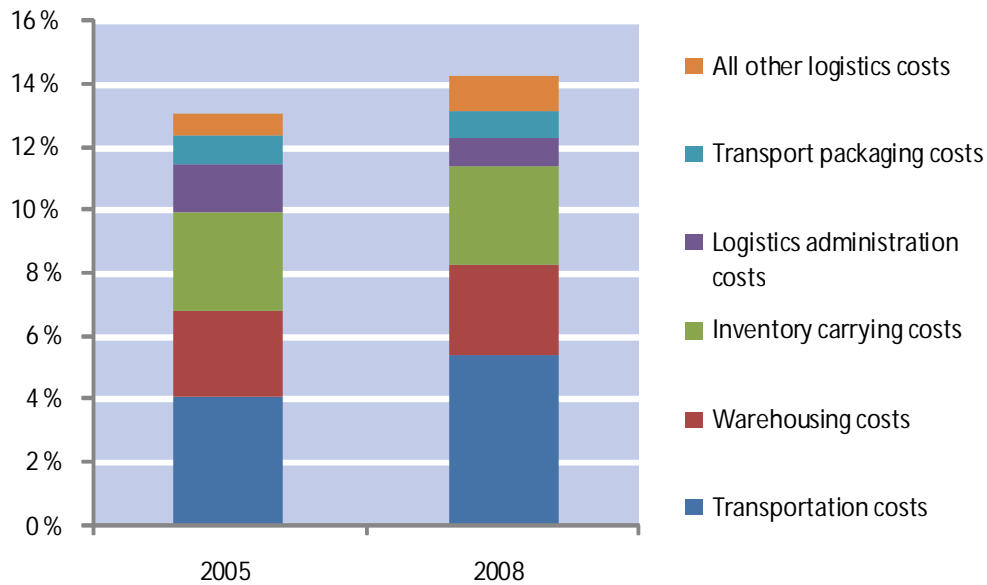


Figure 2 Manufacturing and trading logistics costs as a share of net sales, N=1291

Transport costs total, on average, 6.3% of net sales, i.e. over 40% of all logistics-based outlays. Compared to the previous logistics reports, the share of transport costs has been increased by the rise in the freight rates.

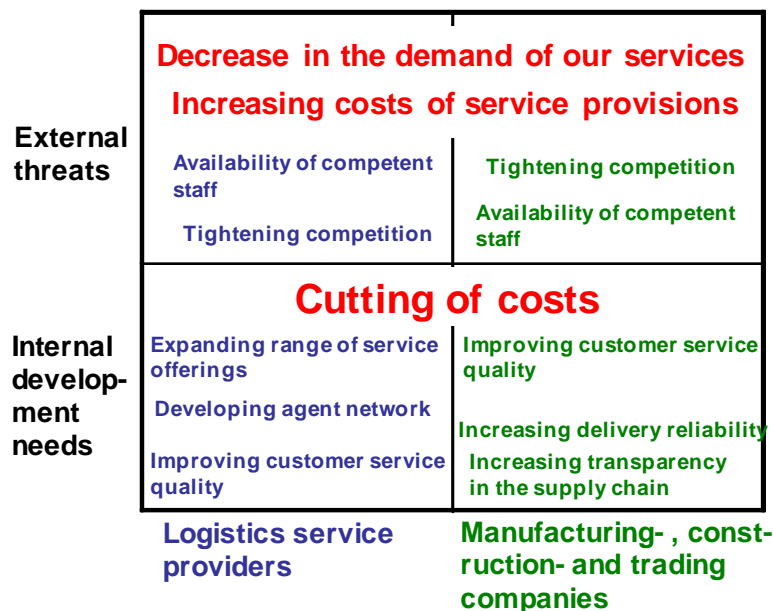


Figure 3 The most important internal development requirements and external threats directed towards operations on the part of Finnish business enterprises

In all main industries, the deterioration in demand and rise in costs were now the most important external threats. In the 2006 report, the greatest threat in manufacturing and trade was management of the increasingly complex supply chain. At the time, the tightening of competition and the increase in fuel prices were the threats for logistics enterprises.



Figure 4 The greatest risk factor for companies based on main industries: percent-age of responses. N: Manufacturing = 934, Trading = 760, Logistics service providers = 847

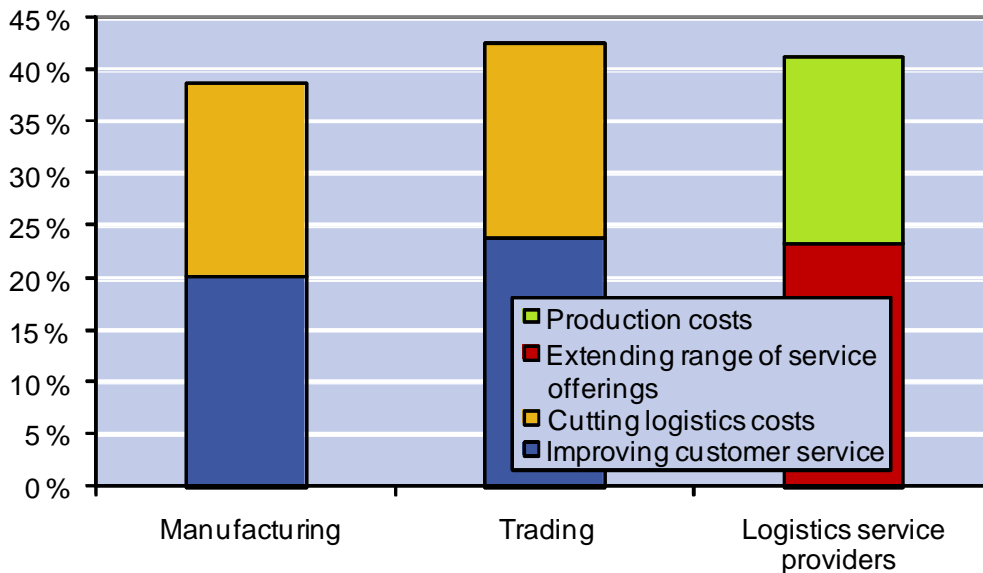


Figure 5 Most important development requirement for enterprises based on main industries: percentage of responses. N: Manufacturing = 893, Trading = 744, Logistics service providers = 865

Improvement in customer service and the reduction of costs now represent the most important development targets in all main industries. In 2006 report, the most important development requirement for large companies was increasing transparency, whereas for small firms it was staff expertise. For logistics enterprises at the time, the development of cooperation networks and customer service were priorities.

Key figures in logistics: The key figures related to accuracy in deliveries, delivery times and the cash commitment period are good on average – even excellent with respect to commerce. By reference to the 2006 report, these key figures have slightly deteriorated in most of the industries represented.

Logistics information systems: The medium-sized and large firms utilize developed information system solutions (ERP, EDI, extranet, intranet). In small companies, the Internet as well as traditional methods to transfer information concerning orders and deliveries are dominant. RFID – i.e. Radio Frequency Identification – is still utilized by only few, though it was anticipated in the previous report that this would grow substantially.

Outsourcing of logistics: The outsourcing of logistics services is anticipated to spread further. For the most part, growth is not really anticipated with regard to outsourced transport services. Information logistics (logistics-based information systems, invoicing, handling of orders) as well as the demand for storage-related outsourcing would appear to be continuing to increase.

With regard to business operations-related prerequisites, the regional differences between the south and other parts of Finland have grown. The results have been presented in this report by means of comprehensive map materials.

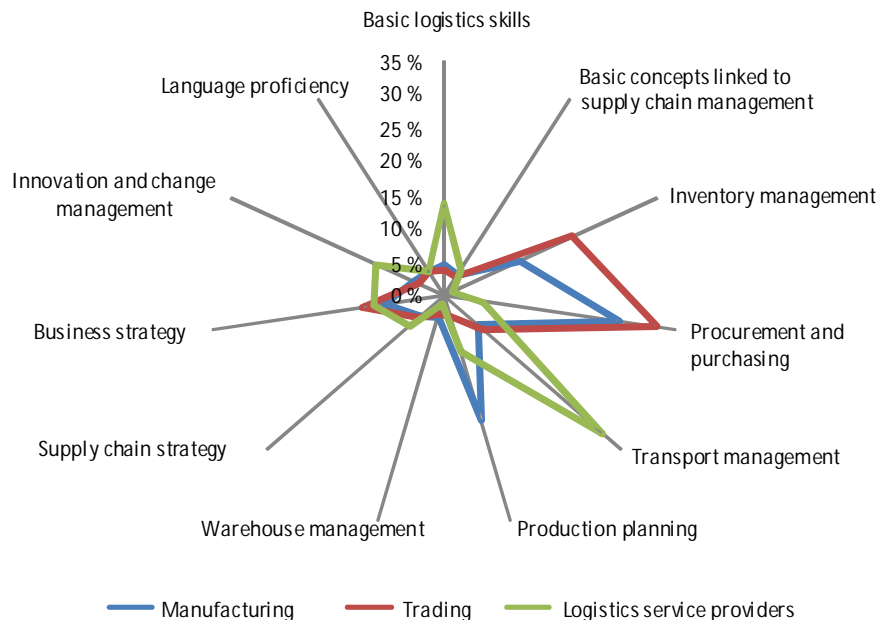


Figure 6 The most important development requirements for (logistics) know-how on the part of personnel in Finnish companies (N=2457)

Expertise in logistics at medium- and large-sized manufacturing firms is, in the light of the reference data available, on a good international level. Moreover, many firms are found in Finland whose logistics functions are amongst the world's most effective in their field.

The significance of logistics to companies' competitiveness has continuously increased. This significance is particularly emphasized when operating on international markets, and the ability of enterprises to operate in an ever more challenging business environment is even more important than before.

For the time being, the ability to follow this "moving target" has been rather good, and the flexible solutions of Finnish enterprises have acted as a competitive advantage, particularly in carrying out operations directly from Finland. Preserving this advantage necessitates better logistics-based know-how than previously. The companies had internalized this well, since the need for expertise in logistics in its various forms was emphasized quite clearly in this report.

2 INTRODUCTION

In 1992, the Ministry of Transport and Communications Finland published the first report concerning Finland's manufacturing, trading and construction logistics status. Similar reports have also been published in 1997 and 2001. The fourth logistics report from 2006 deviated from previous ones both in structure and in its information collection method, and the survey data presented therein was considerably more comprehensive. The report was completed by Turku School of Economics under the direction of Professor Lauri Ojala, with Tapio Naula as project manager.

Finland State of Logistics 2009 is similar to that of 2006 in its method, enabling an overall comparison with the previous data. Project Manager Tomi Solakivi was also responsible for the implementation of the Internet questionnaire. Karri Rantasila has acted as research assistant.

The growing significance of logistics as a competitive factor for firms served as background for the reports. The earlier logistics reports have indeed raised appreciation for logistics and have increased the contribution towards its development.

The examination of Finland State of Logistics 2009 is focused on the following themes whose analysis has, for the most part, been the responsibility of the researchers mentioned below:

- | | |
|---|----------------------|
| • Significance of logistics to business enterprises | → Lauri Ojala |
| • Logistics costs | → Tomi Solakivi |
| • Key figures in logistics | → Juuso Töyli |
| • Logistics information systems | → Tomi Solakivi |
| • Logistics expertise | → Harri Lorentz |
| • Logistics operational environment | → Hanne-Mari Hälinen |
| • Outsourcing of logistics | → Tomi Solakivi |

The quantity and character of the response data enable inspection quite precisely in accordance with the companies' size, industry and location.

In this report, the level of regional examination is the province. Even more precise continued analysis of the data is possible by reference to the postal code of the respondent enterprises' place of business.

2.1 Finland at a glance

Finland is one of nine countries with shores that open onto the Baltic Sea. The others are Sweden, Denmark, Germany, Poland, Lithuania, Latvia, Estonia and Russia, and today all, except Russia, are member states of the European Union. In many respects the Baltic Sea might be called an inland sea of the EU, even more so than the Mediterranean. And for the EU the Baltic Sea is also a very important transport route to Russia, and through Russia to the Far East.

Shipping plays a vital role in Finland's economy; more than 80% of Finnish foreign trade is based on sea transport. Sweden is the only EU member state to have a land border with Finland, and even that border is located in the sparsely populated far north. The "maritime cluster" of shipping and shipping related activities in Finland employs some 47,000 people, directly or indirectly. This is about 2% of the country's total workforce.

Transport costs within Finland are over twice the average of those in EU countries. And because of the country's relative remoteness and its long hard winters, the logistics costs of Finland's foreign trade are distinctly higher than those incurred by other countries in the EU.

Constant efforts are needed to lower logistics costs and to increase logistics efficiency. In the new competitive situation that is unfolding with globalisation, economic growth in Russia and stiffening competition in the Baltic Sea region, it is imperative that a long term and systematic effort is undertaken to strengthen Finland's logistics position. This will also require flexible customs and other official procedures at different stages of the transport chain.

Road transport is the most important mode of transport within Finland. Because of Finland's production locations and structures, railways take a bigger share than in other EU countries. One important aim is to improve productivity in logistics, particularly by making good use of ICT-based technologies.

In 2005, domestic freight traffic totalled 41 billion tonnekilometres. Of this, road transport accounted for 28.7 billion tonnekilometres (70%), rail transport for 9.7 billion tonnekilometres (23.7%), and waterway transport for 4.6 billion tonnekilometres (6.3%).

A key challenge for Finland's infrastructure and logistics policy is to make sure there is access to reliable and moderately priced international routes to and from Finland's major export and import markets. Another major challenge is to maintain Finland's logistics position as Russia's neighbour, at the same time as the position of Estonia, Latvia, Lithuania and Poland continues to strengthen. The EU is committed to promoting closer EU-Russian integration and to achieving strategic partnership. It is in Finland's best interests actively to promote that partnership.

The following tables from the public domain website of the World Bank show the key indicators of Finland (World Bank).

Table 2 Country profile Finland

Country Profile Finland	2000	2005	2006	2007
World view				
Population, total (millions)	5,18	5,25	5,27	5,29
Population growth (annual %)	0,2	0,3	0,4	0,4
Surface area (sq. km) (thousands)	338,2	338,2	338,2	338,2
Poverty headcount ratio at national poverty line (% of population)	..	..	..	..
GNI, Atlas method (current US\$) (billions)	131,48	201,95	217,80	234,83
GNI per capita, Atlas method (current US\$)	25 400	38 500	41 360	44 400
GNI, PPP (current international \$) (billions)	131,47	160,45	174,03	182,73
GNI per capita, PPP (current international \$)	25 400	30 580	33 050	34 550
People				
Income share held by lowest 20%	9,6	..	..	..
Life expectancy at birth, total (years)	78	79	79	..
Fertility rate, total (births per woman)	1,7	1,8	1,8	..
Adolescent fertility rate (births per 1,000 women ages 15-19)	10	10	10	..
Contraceptive prevalence (% of women ages 15-49)	..	..	..	..
Births attended by skilled health staff (% of total)	..	..	..	..
Mortality rate, under-5 (per 1,000)	4	4	4	..
Malnutrition prevalence, weight for age (% of children under 5)	..	..	..	..
Immunization, measles (% of children ages 12-23 months)	96	97	97	..
Primary completion rate, total (% of relevant age group)	97	100	97	..
Ratio of girls to boys in primary and secondary education (%)	105	102	102	..
Prevalence of HIV, total (% of population ages 15-49)	..	..	..	0,1
Environment				
Forest area (sq. km) (thousands)	224,8	225,0	..	..
Agricultural land (% of land area)	7,3	7,4	..	..
Annual freshwater withdrawals, total (% of internal resources)	..	..	..	..
Improved water source (% of population with access)	100	..	100	..
Improved sanitation facilities, urban (% of urban population with access)	100	..	100	..
Energy use (kg of oil equivalent per capita)	6 371	6 664	..	..
CO2 emissions (metric tons per capita)	10,0	..	..	..
Electric power consumption (kWh per capita)	15 286	16 120	..	..
Economy				
GDP (current US\$) (billions)	121,86	195,45	210,65	246,02
GDP growth (annual %)	5,0	2,9	5,5	4,4
Inflation, GDP deflator (annual %)	2,6	0,2	1,3	2,5
Agriculture, value added (% of GDP)	4	3	3	..
Industry, value added (% of GDP)	34	31	32	..
Services, etc., value added (% of GDP)	63	66	65	..
Exports of goods and services (% of GDP)	44	42	44	..
Imports of goods and services (% of GDP)	33	36	38	..
Gross capital formation (% of GDP)	20	21	21	..
Revenue, excluding grants (% of GDP)	40,9	38,9	38,3	..
Cash surplus/deficit (% of GDP)	6,8	3,2	3,9	..
States and markets				
Time required to start a business (days)	..	14	14	14
Market capitalization of listed companies (% of GDP)	241,0	107,2	126,0	150,1
Military expenditure (% of GDP)	1,3	1,4	1,4	1,2
Fixed line and mobile phone subscribers (per 100 people)	127	141	144	148
Internet users (per 100 people)	37,2	53,4	55,5	68,1
Roads, paved (% of total roads)	62	65	..	..
High-technology exports (% of manufactured exports)	27	25	22	..
Global links				
Merchandise trade (% of GDP)	66	64	69	69
Net barter terms of trade (2000 = 100)	..	..	..	..
External debt, total (DOD, current US\$) (millions)	..	..	..	..
Short-term debt outstanding (DOD, current US\$) (millions)	..	..	..	..
Total debt service (% of exports of goods, services and income)	..	..	..	..
Foreign direct investment, net inflows (BoP, current US\$) (millions)	9 125	4 805	5 311	..
Workers' remittances and compensation of employees, received (US\$) (millions)	473	693	698	772
Official development assistance and official aid (current US\$) (millions)	..	..	..	..

Source: World Development Indicators database, September 2008

Finland is a high income country with one of the highest GDP per capita ratios in the world. In the following table, the population and GDP are compared with relevant US states.

Table 3 *Comparison of GDP/capita and the size of the population between Finland and selected US states.*

	GDP per capita USD(nominal)	Population
Connecticut	50 332	3 502 309
Finland	46 856	5 326 314
Massachusetts	46 721	6 449 755
Colorado	41 798	4 861 515
Minnesota	41 295	5 197 621
Washington	39 616	6 468 424

Long distances from the main markets form a definite disadvantage, reducing speed and adding to costs. Long transport journeys involving multiple legs are time consuming – and time is often the most critical scarcity factor in logistics.

One way to reduce the impact of distance is to accelerate speed at all stages of the order-delivery chain.

Logistics is a recognized factor of competitiveness. In Finland logistics is based on efficiency, good transport markets and the development of transport connections. In their decision making business firms and the authorities take account of the needs of sustainable and competitive logistics.

Education and research in logistics are well respected. Finland has in place a comprehensive education system in logistics which produces competent and knowledgeable people for logistics jobs at all levels. Logistics research is of an internationally high standard. Logistics businesses have considerably stepped up their investment in research and development.

Finland's logistics knowhow contribute to the trade and logistics between the EU, Russia and Asia. Finland has taken advantage of its strengths since the Russian market opened up. Logistics has a key role to play in this partnership. Strong logistics boosts competitiveness, economic growth, employment and welfare. The European Union has in recent years been working to open up its transport services market, and the common market will continue to expand as new members come on board.

The main theme of Finland's Presidency of the EU in the field of transport will be logistics. The European Commission published a communication about logistics in June 2006, and Finland will lead the EU member states' discussions about it. The communication responds to the demands posed by the Lisbon strategy by proposing the means whereby logistics can be improved in the EU. Finland has already taken the initiative in suggesting measures that the EU should take to improve logistics:

- There are still areas of the logistics markets that do not function as they should. The EU should continue to deregulate the logistics services markets.

- Impact assessments of all relevant proposed EU regulations should also be made from the logistics point of view.
- At present, there are no systematically collected key indicators to describe the state of logistics in Europe. Suitable indicators need to be identified and specified, and a decision then made as to how, and by whom, they will be monitored and kept up to date.
- The EU should invest more in logistics research, training and education, in order to improve levels of knowhow and achieve more efficient and sustainable logistics.
- The public sector plays a significant role in the development of logistics. There should be new, more effective and faster procedures in international decision making with regard to creating standards and implementing ICT-based technologies. There should also be public funding for development work for the public good.

2.2 Significance of logistics to business enterprises

In this report, 'logistics' as broadly understood refers to all logistic functions as well as operations linked with the management of order production chains and supply networks.

In examining the significance of logistics to enterprises, the target group is businesses in manufacturing, construction and trading industries: i.e. the users of logistics-based services. The users' needs varied quite considerably according to, for instance, the industry of the enterprise, the 'value added' of production, size, operational method and degree of internationalization.

The significance of logistics for business life has been noted also from that ordered by, among others, the Confederation of Finnish Industries EK (see e.g. EK, 2008), and in the work, naturally, of the interest organizations in the industries that generate logistics-based services.

The Ministry of Transport and Communications Finland has outlined the development requirements of logistics by means of, for instance, the "Strengthening Finland's Logistics Position" action programme as well as the activities connected with the same. The Ministry has also published, in various series, a considerable amount of material connected with the subject. With regard to these actions, the Logistics Forum established by the Minister of Transport and Communications in 2008 deserves mention. Actors from many private and public sector fields are represented there.

During its chairpersonship period in 2006, Finland also raised logistics to the level of the EU political agenda. The announcement concerning freight traffic logistics and the procedures resulting from the same are indications of this. (http://ec.europa.eu/transport/logistics/index_en.htm)

2.3 Logistics costs

With regard to logistics costs, the current level of various cost components is surveyed in the report and the development of outlays in the near future is assessed. The cost components examined thereby are the cost items linked with enterprises' management of physical material flows such as deliveries and storage, and including warehouse-committed capital costs.

Many indirect costs are also associated with logistics functions, such as the outlays connected with administration and information systems. Expenses linked with physical operations are frequently quite clearly specifiable. The allocation of indirect costs is considerably more difficult, because these are often in-house costs that may possibly be combined with various functions.

One of the aims of this survey is in fact to clarify to what extent the companies generally recognize the existence of indirect costs and their order of magnitude, as well as increase awareness with regard to the level of logistics-related indirect costs.

Logistics costs represent part of the firm's business expenses. The weight of logistics costs-related components also varies according to the industry. In the production of raw materials, transport costs are frequently the most substantial item, whereas the warehouse-committed costs in high value-added production can be several times larger than transport outlays. The operational structure of the enterprise (e.g. concentrated or deconcentrated) or its production-based format (e.g. contract manufacturing) also affect the share of logistics costs, even within the same industry.

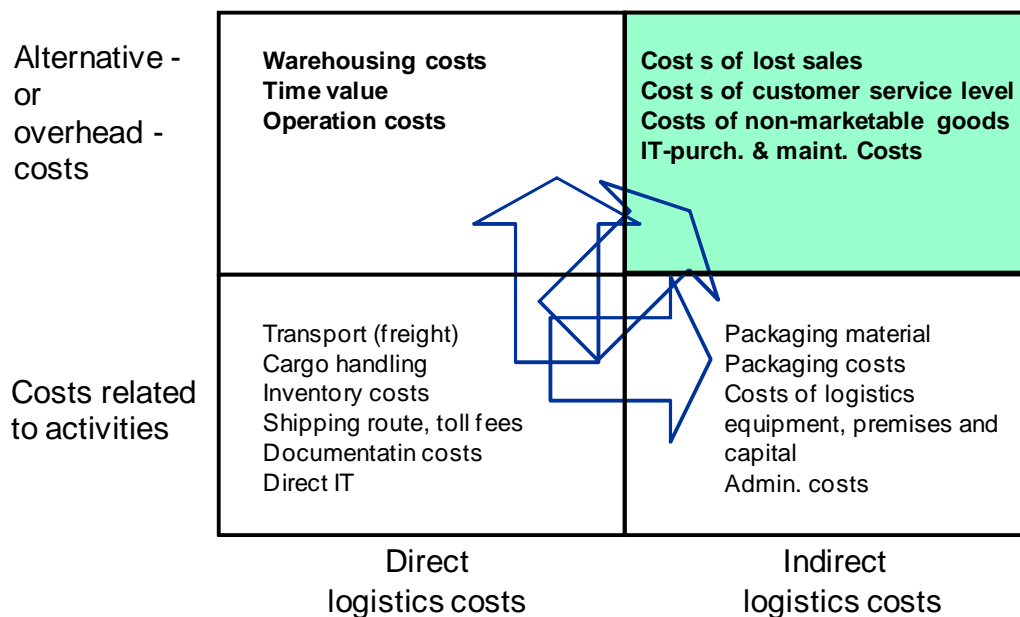


Figure 7 Distribution of logistics costs: the arrows show the emphasis in the significance of indirect and/or alternative costs under competitive pressures.

This being the case, it is not possible to directly conclude from the proportion of logistics costs relative to net sales whether or not the company's logistics are well or poorly managed. For example, the company may function profitably in a very good market situation, even if the logistics costs are substantially high. Moreover, effective logistics also represents a significant source of competitive advantage – not just a cost factor. The effective management of logistics actually infers the successful resolution of many alternative benefits and detriments in “trade off” situations.

2.4 Key figures in logistics

In the survey, the use in companies of certain pivotal key figures and absolute values in logistics were clarified. Key figures were dealt with from the perspective of delivery times, accuracy of deliveries, warehouse turnover and payment periods.

From the viewpoint of precision in deliveries and the flexibility of the businesses, the matter was clarified by also requesting the firms to assess various claims concerning how effectively and flexibly they are able to handle their logistics both absolutely and by comparison to their various interest groups.

The key figures clarified in the survey are generally in use at the companies and are an intrinsic part of, for instance, the information generated by the operational control systems.

2.5 Logistics information systems

In this report, all such information systems that the main industry as a target group use or may apply as part of their logistics-related functions are understood to be logistics-based information systems. This definition is intentionally broad, so that a general picture can be obtained on the use and significance of information systems in the operations of these firms.

Particularly in small companies, the use of electronic systems is rather modest.

For example, Läikkö and Solakivi (2007) clarified the usage of information systems at 508 business enterprises in the Turku region. The results indicate that the traditional modes of communicating (telefax, telephone) still dominate in small- and medium-sized enterprises. (Fig. 8) It can be said that even the use of email in the smallest businesses has only recently become common.

The large companies most usually resort to tailored IT solutions, whereas SMEs often lack the prerequisites to expand the usage of electronic systems and services. The following have been dealt with in this report, among other things:

- Email
- Intranet/extranet systems
- EDI (Electronic Data Interchange)
- ERP (Enterprise Resource Planning systems: systems for operational control)
- RFID (the use of Radio Frequency Identification)
- Bar codes

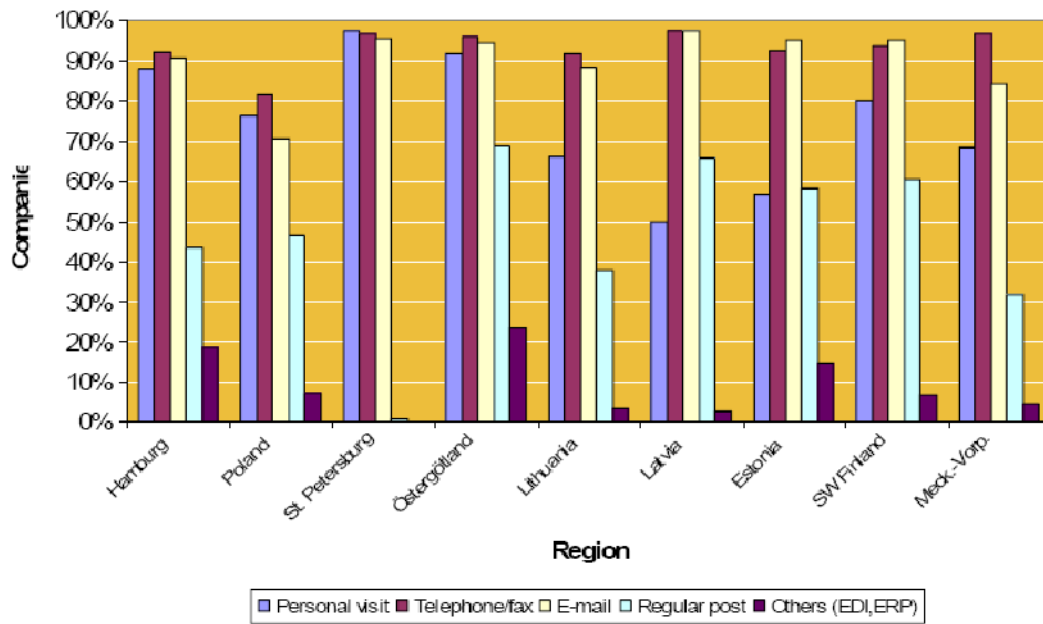


Figure 8 Systems of information exchange with customers and suppliers as used by enterprises, N = 1 354. (Kron and Prause 2007)

In the light of the fresh reference data from the Baltic region, email in particular is rather widely incorporated by companies within their customer and supplier relationships. More demanding systems (EDI or ERP) are mostly applied in Hamburg, Sweden's Östergötland (Linköping, Norrköping), Estonia and Southwest Finland (Kron and Prause 2007). This information is based on the ICT survey responded to by over 1,300 businesses from the Baltic sphere, conducted in 2007 under the LogOn Baltic project and financed in part by the EU's INTERREG III B programme.

2.6 Logistics expertise and development needs

In this report, the same distribution is used with regard to logistics expertise as in the previous 2006 report, in which the segmentation of logistics competence ("Professional Qualifications in Logistics") defined by the European Certification Board for Logistics (ECBL) educational division was applied under the European Logistics Association (ELA). Logistics know-how as well as its level and development needs have been dealt with under the following themes, amongst others:

- Transportation
- Warehousing
- Materials administration
- Inventory management
- Logistics management
- Management of changes occurring in the operations of the firm
- Foreign and second language skills

2.7 Logistics operational environment

The operational environment of the enterprises is examined in this report from the perspective of the risk factors experienced by these firms as well as the geographical location and physical operational environment.

For the purpose of regional examination, the response data also features postal codes by which means the replies can be regionally located. With regard to the geographical operational environment, the companies' viewpoints have been clarified from the perspective of the general business environs, logistics-related efficiency, regional traffic infrastructure and placement of competitors.

2.8 Outsourcing of logistics

With the enterprise concentrating on (LAN) its core business operations, the handling of other functions are transferred either partly or entirely to external service providers. The outsourcing of logistics functions has indeed spread quickly both in Finland and elsewhere in the world (cf. Langley 2008).

The outsourcing of logistics is treated both in terms of the current situation in the outsourcing of operations and with regard to the development trends of the future. The questions concerning outsourcing in the 2006 report observed Langley's international survey structure (2005), which has subsequently changed (Langley 2007 and 2008). For the sake of logistics report comparability, the questions concerning outsourcing have been kept similar to those in the 2006 report.

In addition to the clarification of the present status of various operations, the future of demand for logistics functions has been determined by "mirroring" the perspectives of the demand side (manufacturing and trading) firms and the supply side (logistics firms) in the development of demand in various services.

3 IMPLEMENTATION OF THE REPORT

Essential observations in brief:

- Target groups in report: Manufacturing, Trade and Logistics service providers
- Over 2,700 respondents, all enterprise sizes and fields well-represented
- Response rate 10.2%
- Internationally speaking, the most comprehensive data on this theme
- Includes the comparison study-based comprehensive data concerning the year 2005
- The operational environment has changed significantly from the 2006 report

3.1 The economic operational environment as the point in time for report implementation

The information for Finland State of Logistics 2009 was gathered at a point in time when the global economic situation and prospects for the near future were quite different from those at the time the 2006 report was completed. Some indicators describing the economic situation and expectations have indeed been adopted into the report which characterize the conditions predominating during the periods of completing the questionnaires. Comparison helps in interpreting the changes observed in the reports with regard to the assessments by the companies in their functions and operational environments.

3.1.1 Confidence indicators for industry and services

Confidence indicators show the current business cycle situation in manufacturing, services and construction. These confidence indicators are based on industrial production expectations, orders on hand and ready product reserves, while the development of sales, sales expectations and the general economic trend are examined with respect to services.

In collecting the information for Logistics Report 2006, the confidence indicators on industry and services, which were also on the rise with regard to industrial orders in hand and the sale of services, were above the long-term average value. Both confidence indicators achieved, during a short interim, their highest figures in 2007, after which they have plunged below the long-term mean value.

The deterioration in orders in hand and production expectations in industry sank in October 2008 to the balance figure of -14, from which it continued a sharp decline in November, ending up on the lowest level since the inquiry was started in 1993. The confidence indicator for services also weakened in 2008 below the long-term mean value.

The development of the industrial confidence indicator in the eurozone follows the same trend as in Finland (Fig. 9). The pan-European confidence indicators are significant for those export firms in particular whose main market region is Europe.

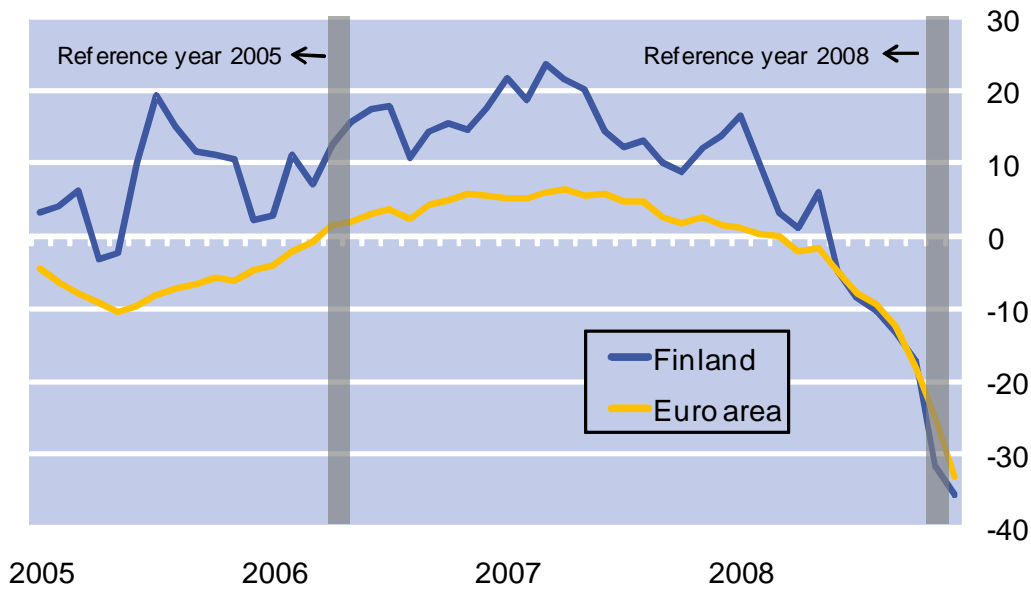


Figure 9 Consumer confidence indicators in Finland and the eurozone, 2005–2008 (Bank of Finland)

The consumers' confidence indicator measures unemployment expectations, savings possibilities and development perspectives in the economic situation. The belief on the part of private consumers with regard to the development of the economic situation in the near future is also reflected in the level of consumption. In particular, this affects the activity of enterprises whose most important customer group is the private sector. Direct impact is greatest in the trading.

Consumer confidence was considerably higher while completing the previous report than the current one (Fig. 10). The balance figure for the consumer confidence indicator fell to the minus at the end of 2008, while conversely it had continued almost uninterrupted growth between 2005 and 2007. Confidence on the part of consumers underwent a similar, quick decline throughout the entire Euro zone, weakening at the end to the lowest level of the first decade following the year 2000. This slowed the trade in consumer products.

The Confederation of Finnish Industries EK publishes, in addition to confidence indicators each month, a trade cycle barometer which describes the situation of industry, construction and services and economic trend prospects with regard to the Finnish private sector. The trade cycle barometer prospects deteriorated in the manner of the confidence indicators strongly in 2008 from the 2006 level, at which time the trend-based scenario at the beginning of the year was, in all industries, stronger than what had been anticipated.

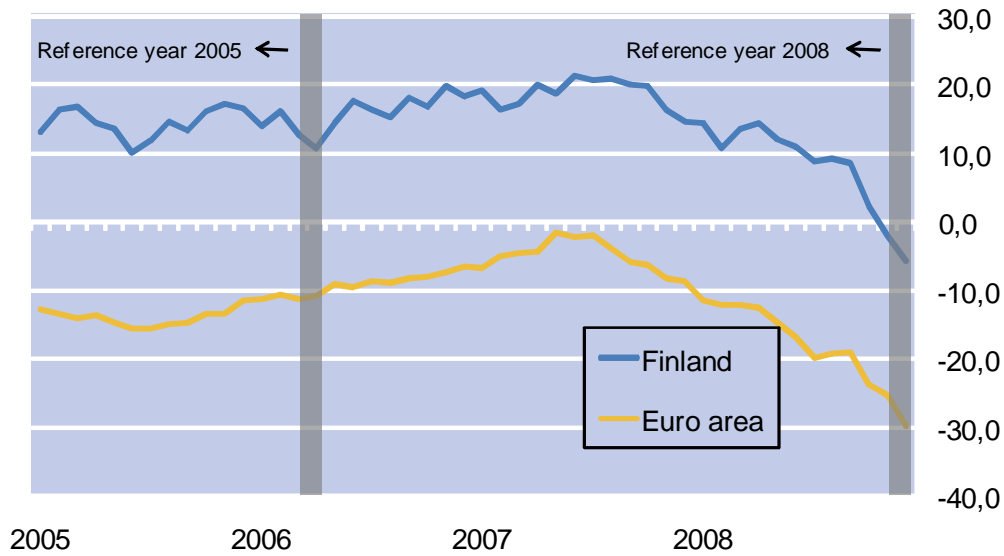


Figure 10 Consumer confidence indicators in Finland and the eurozone, 2005–2008 (Bank of Finland)

3.1.2 Interest rate development

One can get clues of the interest rate levels predominating at various times on the financing markets through examining the Euribor rate, which characterizes the banks' essential lending. This rate is generally used also in determining the rate of interest for lending in the private sector. The rate of interest affects logistics outlays, particularly via the costs of warehouse-committed capital.

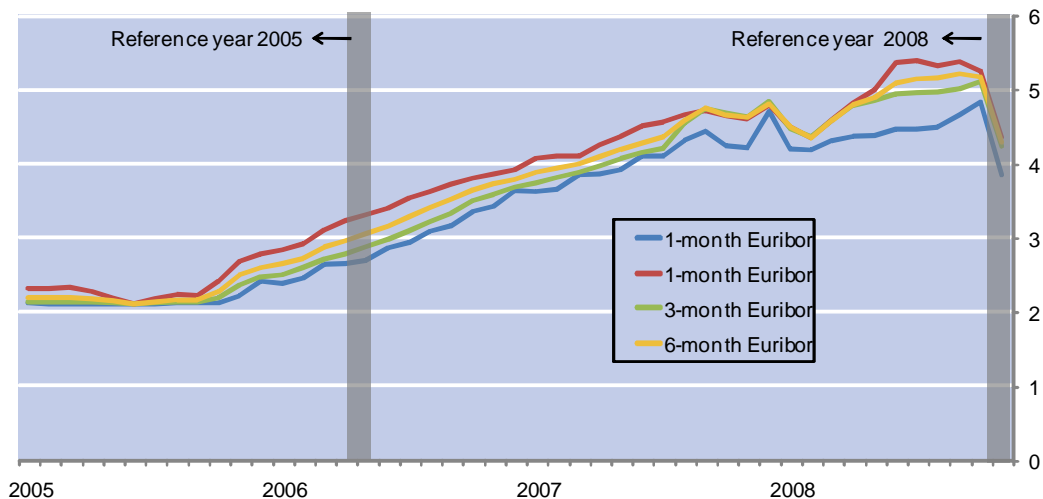


Figure 11 Development of Euribor interest rates, 2005–2008 (European Central Bank)

The Euribor interest rates, depending on duration, had even increased over 50 percent from 2005 to 2008 (Fig. 11). This impacts enterprises' capital costs, the cost of loans and accessibility to financing, thereby causing difficulty in making investments, for example. On the

other hand, a rise in interest rates also speaks on behalf of general uncertainty in the economic situation and simultaneously worsens, in part, private consumption demand as well.

3.1.3 Purchasing Managers' Index (PMI) and Germany's IFO index

JP Morgan Global PMI (Fig. 12) is the international Purchasing Managers' Index (PMI) assembled by the JP Morgan finance institution of the United States. This index measures production, orders, employment, prices and prospects in manufacturing and the service industries. The information in the index is gathered from over 20 countries, corresponding to 76% of the world's economic production, so its comprehensive coverage is very good.

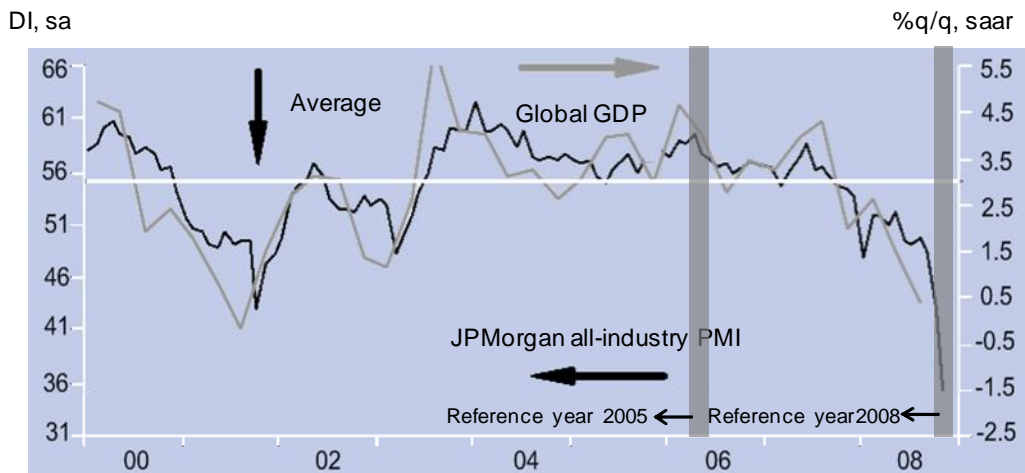


Figure 12 JPMorgan Global PMI 2000-2008 (Institute for Supply Management)

In examining the prevailing economic expectations during the implementation of the latest logistics reports, it can be noted that the JP Morgan Global PMI and the U.S. Purchasing Managers' Index (Annex 13) provide the same sort of information concerning the state of the economy. At the end of 2008, JP Morgan Global PMI sank to the lowest level after initiating publication of the index. This tells of considerably weaker world economy prospects in comparing the results of the 2006 and 2008 reports.

In this connection, mention should be made of the European trade cycle surveys: for example, the IFO Index generated by the CESifo research facility, which measures Germany's economic trend-related expectations and the current situation. Germany's share of the European Union's GNP is substantial, for which reason the predominant expectations in the country can be regarded as partly descriptive of the prospects dominating elsewhere in Europe. Moreover, Germany is Finland's most important trade partner. In implementing Finland State of Logistics 2009, the IFO Index also tells of the poor prospects dominant at the time. (Annex 14)

3.1.4 Key figures of the national economy

In evaluating the operational environment at the time of preparing the reports, there is reason to also examine information and key figures available from the accountancy concerning the national economy. Certain pivotal national economy-based key figures have been collected in Fig. 13.

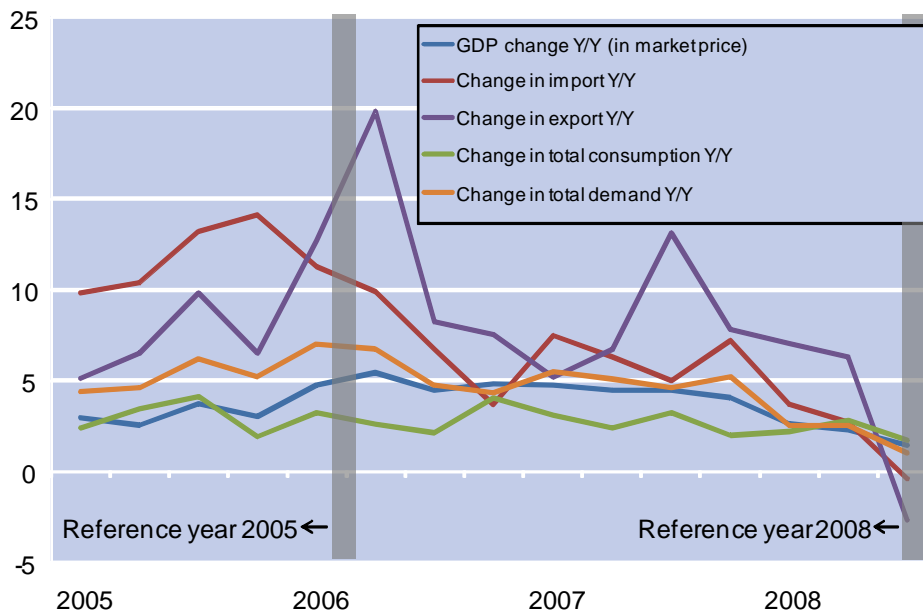


Figure 13 National economy accountancy-based key figures on a quarterly basis, 2005–2008, percent as unit of change (Statistics Finland)

As measured by all indicators, Finland's national economy has grown practically without interruption during the last few years. From 2006 to 2008, however, overall consumption and demand as well as the growth in the GNP slowed significantly. On the basis of the key figures describing foreign trade, import growth has substantially quieted. Additionally, export turned rapidly to decline during the third quarter of 2008.

The growth acceleration of the economy had, as this report was being made, evened out by reference to the year 2006 in all indicators. According to the GNP data published at the end of February 2009, Finland's economy had officially reverted to recession in the manner of many other nations. It is an established specification of recession that the economy shrinks for two consecutive quarters. The start of recession corroborates the assessment of confidence and other indicators to the effect that the types of atmosphere during the preparation of the logistics reports have been highly varied.

3.1.5 Energy prices

One of the largest cost items for professional traffic is made up of fuel costs, which are indirectly reflected also in industrial freight expenses and thereby in yield margins. As can be noted from Fig. 14, fuel prices have followed the development of global market prices for crude oil rather precisely.

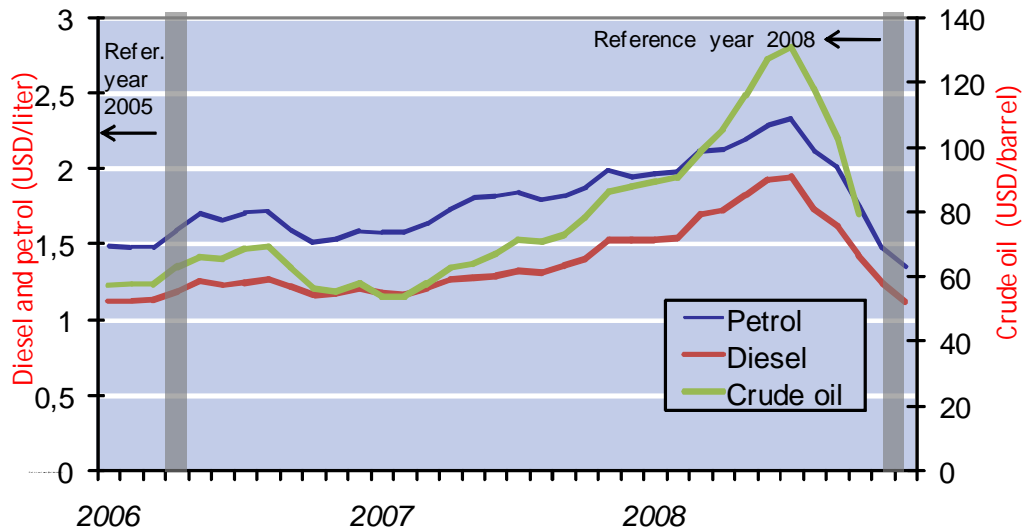


Figure 14 Global market prices for fuels and crude oil, 2005–2008 (International Energy Agency)

The rapid shift of the price for crude oil to fuel prices places considerable pressures on those engaged in the transport trade to shift costs to the end customer, which may nevertheless be difficult due to, for example, long-term agreements. A second large user of crude oil is the manufacturing industry, which uses oil as a raw material. For this sort of industry, change to the price of crude oil also exerts direct cost impacts. The bunker rates in marine traffic (Annex 15) have observed a similar kind of development.

3.2 Target group and sample

The target groups in Finland State of Logistics 2009 are the Finnish:

- (1) Manufacturing companies (including construction),
- (2) Trading companies
- (3) Logistics service providers.

The term “main industry” shall subsequently be used for these target groups. In Finland, the new TOL 2008 industry classification is being introduced in 2009, but in this report the decision was made to apply the older TOL 2002 classification, which was still in effect at the time the report data was being collected.

The report data was accumulated in November-December in the form of an Internet questionnaire. Depending on the industry, the survey comprised 24-26 question groups. It was possible to respond to the questionnaire in Finnish or Swedish. It was a central principle in formulating the question groups to preserve comparability with the previous 2006 national logistics report.

The request to take part in the survey was delivered by email to a total of 26,311 people. From the perspective of the success of the survey, what was decisively important was the acquisition of personal email addresses from the following parties: the Finnish Association of Purchasing and Logistics (LOGY), Federation of Finnish Enterprises, Finnish Transport and Logistics SKAL, and the Chambers of Commerce. A total of 2,705 approved replies were received, the response rate resulting in 10.2%.

The survey was carried out so that each recipient received a personal email link to the web-based Webropol service. After two weeks, a reminder was sent to the non-reply addresses, and one week after that still another reminder. Of those who replied, 37% (996) represented manufacturing and construction, 29% (794) trading 34% (915) logistics services.

In the main, the report respondent group corresponds to the total number of respondents in the 2006 report. The quantity of logistics service enterprises – particularly those functioning in road traffic freight delivery – has increased substantially. The industry distribution of the respondent firms is also, for the most part, similar in character. The distribution of respondents on industry basis is presented in Annex 1.

The report data is grouped in this report in accordance with main industry, size of the firm and, partly, the internationalization of the business enterprise. Other background variables are also utilized in the classification to the extent that their use has been meaningful from the viewpoint of analysis.

The division of enterprises into size classes observes the specification of the European Commission for the size of micro-enterprises in addition to small- and medium-sized enterprises with regard to net sales, as follows:

Large enterprises: over EUR 50 million
 Medium-sized enterprises EUR 10 - 50 million
 Small enterprises: EUR 2 - 10 million
 Micro-enterprises: EUR 0 - 2 million

The specification of the European Commission also contains the limits on total personnel in the enterprise as well as with regard to the final total of the balance sheet, but with this report it has been noted that the firms are capable of being split into groups with adequate precision merely on the basis of net sales.

The distribution of respondent enterprises with regard to pivotal background variables is presented in Table 2.

Table 4 *Respondent enterprises in accordance with enterprise size and the classifications used in the report*

Company size	Manufacturing & Construction				Trading	Logistics- service- providers	N
	Domestic market companies	Export companies	International companies	Total			
Micro	519	76	13	608	490	555	1653
Small	90	41	25	156	194	146	496
Medium	37	42	17	96	50	103	249
Large	22	49	65	136	60	111	307
Total	668	208	120	996	794	915	2705

3.3 Reliability of research

The reliability of the research can be dealt with either with respect to the entire study or in part. Examination of research reliability is associated with how competent, general and practicable the knowledge obtained is. The dependability of the indicators used is assessed in relation to their measurement accuracy (i.e. their reliability) as well as their competence (i.e. validity). From the perspective of research results, it is essential that the indicators used measure what is intended for measurement: in other words, that the research results are valid, added to the research findings not being based on chance, i.e. they are reliable.

Amongst the respondent group, the large enterprises are to some extent over-represented as proportional to the size distribution of all the Finnish firms. In determining the average manufacturing and trading logistics costs on the macro-level, the differences between the various industries are taken into consideration by weighting the industries on the basis of their net sales shares, on the foundation of Statistics Finland's overall data.

The research data has been treated so that it has been possible to bring the influence of background variables on the results to the fore as well as possible. Indeed, the data has been examined by grouping it on the basis of size, industry, production method or some other background variable. Within the groups formed by background variables, observations are for the most part dealt with equivalently, so that the findings are based in the main on the arithmetical mean values or totals.

For example, with regard to the logistics costs, various methods have been applied in analysis. In the study performed between the enterprise size classes, the same weight has been assigned to all the enterprises in determining average costs.

The report has been implemented as a survey, so in gathering the data possible sources of error are, for example, the fact that the respondent has misunderstood some question or the answer has been erroneously inputted. Most of the response alternatives were 'closed' questions in which the respondent had certain reply alternatives to choose from or numerical values to select from a pull-down menu. The only open questions were associated with enterprise-specific key figures: among others, order lines, payment periods and material flows. Prior to the analysis of the data, clearly divergent or impossible observations and other sources of error have been eliminated, as based on previous empirical data and theoretical backgrounds.

The firm's logistics costs were inquired about with regard to each separate cost component. The size of each cost item in full percentages had to be selected from the pull-down menu (0,1,2,...50). The overall costs of logistics are presented as a combined total of their components. With regard to small cost items (in many instances, e.g. transport packaging costs or indirect expenses), total percentage units are utilized as a rough scale. With respect to such a large group of respondents, however, this procedure is justified, since no definition of unambiguous logistics costs is available.

It must be noted that the respondents have not necessarily had all information at hand during the response situation: rather, the answers are based at least partly on the respondent's imagination. The responses may therefore also reflect the respondents' hopes and fears in conjunction with an objective viewpoint. The respondents' distribution of the group of persons (Annex 5) nevertheless indicates that those responding to the survey can be assumed to have a general understanding of the survey's themes.

Each respondent has in turn been promised a report proportioned to his/her own information, which has raised on its part the motivation to reply to the survey questions as truthfully and deliberately as possible. This also indicates that the questionnaires were filled in quite carefully, and the question alternatives were hardly left empty as a whole.

The heterogeneity of the respondent enterprises should not be seen as a negative factor that reduces the reliability of the research. A versatile group of respondents provides a more realistic picture of the logistics status of Finnish companies than if the report covered only logistically advanced businesses.

Particularly in examining numerical results, it should be noted that the findings are based on survey-related research rather than precise quantitative analysis, such as final accounts analysis. The data is nevertheless unprecedentedly large and represents Finnish business enterprises well on behalf of industry, size class and geographical location.

To our knowledge, there are no publications in the research literature on the field in which the results have been presented with such a wide range of survey data on this theme. The numbers of respondents in the publications known from one country have typically derived, even at best, from a few hundred business enterprises.

Proportioned to the size of the Finnish nation, it can indeed be said that the data at hand represents the most comprehensive of its kind on corporate logistics in the world.

4 THE SIGNIFICANCE OF LOGISTICS TO INDUSTRY AND TRADE

Essential observations in brief:

- Logistics an essential source of competitiveness also in main competitor countries
- The weight of logistics-based factors varies according to the field, production 'value added', size, operational mode and degree of internationalization of the enterprise
- Finland's logistics position is good but not excellent by international comparison

The term 'business logistics' has generally been used in connection with the manufacturing industry and commerce. Some logistics operations have traditionally been organized within manufacturing or trading enterprises, but fulfilling the demands of customers without increasing costs still requires better integration of logistics-based functions (Fig. 15).

Tightened competition, technological development and global business strategies are pivotal reasons for the enterprises' attempts to coordinate their supply chains from the suppliers of raw materials right through to end users. The management of this entity or part of it is also referred to as Supply Chain Management, SCM ¹.

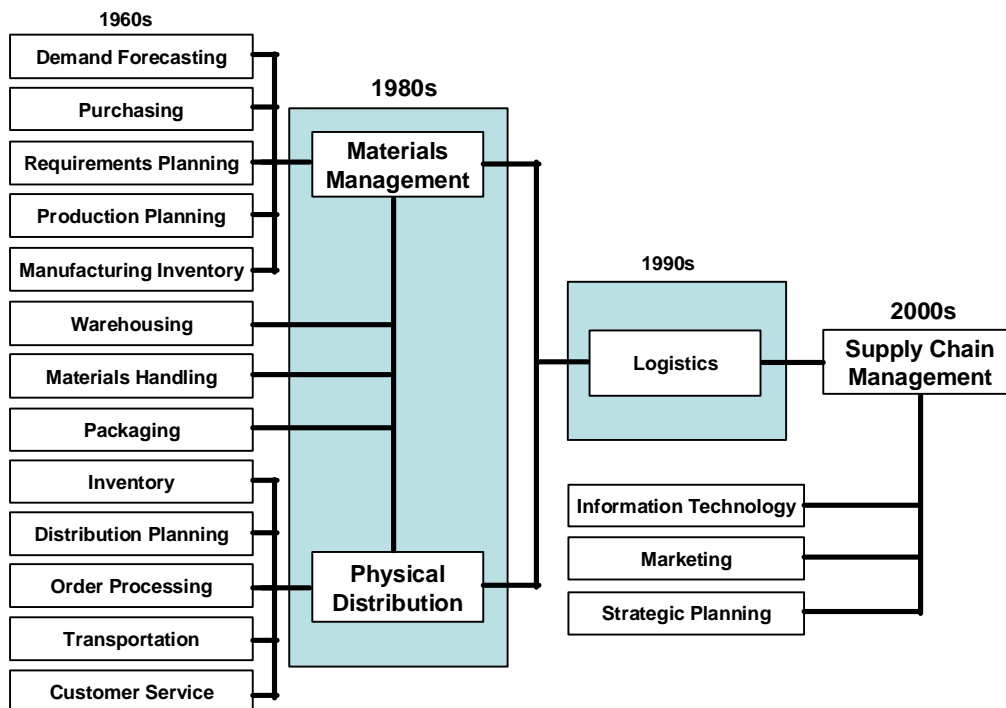


Figure 15 The development of logistics integration from individual functions to the management of the supply chain (Hesse & Rodrique, 2004)

¹ In this report, the terms "logistics" and "management of the supply chain" are treated in practice as synonyms. In the research literature within the field, the semantic differences between these terms are, in fact, frequently discussed. Conversely, many enterprises have developed business administration-related terms that better describe the entity concerned for their own requirements. These sorts of terms are, for example, Nokia PLC's "Demand-Supply Network (Management)" and Kone PLC's "Supply-Demand Balancing".

Effective management of the supply chain requires the coordination of logistics functions connected with materials and information flows throughout the entire order/supply chain. Narrowly speaking, the order/supply chain refers to a customer order received by the firm and the company's processes by which the product ordered is manufactured or reserved and delivered in the manner agreed to the client. In practice, the process concerned requires activity by the companies producing transport and/or warehouse services and frequently also by several levels of suppliers. The more seamlessly that the information and material flows as well as the related payment traffic can be conveyed through the entire chain, the more effectively the logistic chain will work.

Management of the supply chain seeks to minimize costs committed to the chain and at the same time to deliver the products to the customer in accordance with the service standard agreed. The effective management of the supply chain also demands the distribution of information and risk amidst the entire chain.

The number of actors in the chain affects the manageability of operations: the greater the number, the more difficult it is to predict the whole, let alone manage it. For this reason, the large firms in particular seek frequently to reduce the number of suppliers of goods and services in their endeavour towards more effective logistics. In reality, the achievement of these goals is very difficult. In particular, the distribution of delivery and inquiry information amongst partners can, for reasons of competition, prove impossible – even if logistics costs could thereby be reduced.

The development of logistics operations has been rapid especially in the assembly industry, such as the electronics and motor vehicle industry, where component costs are high. The higher the cost share of materials-related components relative to the final product is, the more important the compatibility of logistics functions becomes. In this connection, the industries may well be quite different from each other. Fig. 16 illustrates the formation of added value in four industries.

The indirect costs of logistics may be considerable, but their measurement can be difficult. For example, the non-marketability of high 'value added' in the assembly industry is often a considerably more significant cost item than deliveries. In rapid-rotation production, a component in the warehouse may soon become non-marketable, at which point its market value falls and is lost even entirely. This phenomenon is also termed 'price erosion'.

For example, the share of components required for production in the electronics industry may be over 70% of the value of the final product. The life cycle of these sorts of products is often short, so enterprises attempt to supply products quickly in order to minimize warehouse and price erosion costs. Conversely, in the pharmaceutical industry, for example, the share of raw materials relative to the price of the end product is low, and research and development forms a key cost component.. Correspondingly, the profit margin on particularly medications within the patent protection sphere is substantial. Similarly, costs in the food industry are split fairly evenly between raw materials acquisition, production and distribution.

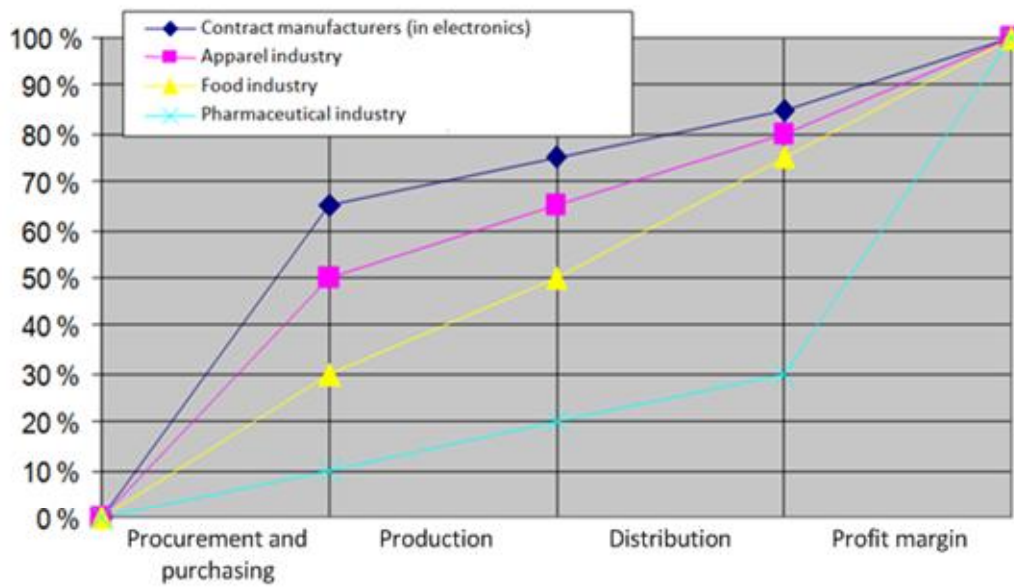


Figure 16 Composition of added value at various stages of the supply chain in four model industries. This figure is indicative only and is not based on the data in this survey. (Ojala, Andersson, Naula 2008)

4.1 Logistic value chain and globalization

As a result of globalization, shorter response times and outsourcing, improved and more economical logistics operations are being demanded from business life. The integration of the supply chain is a means for enterprises to achieve a competitive edge.

In adjusting to these operational environment changes, also logistics enterprises seek to offer ever broader service entities and function in a wider geographical area. In addition to companies offering transport and warehousing services, IT and consulting businesses in the industry have become a fixed element of the logistics markets. One consequence of changes in the operational environment is the development of ‘third-party’ logistics service enterprises.

Logistics is one the most outsourced business elements, and many enterprises have established long-term partnership agreements with third-party firms that offer external logistics services. As a result of globalization, the management of business operations is becoming more complicated. At the same time, logistics has become an essential element of the global value chain.

With companies endeavoring to reduce their expenses, developing countries have become competitive producers for many commodities. This has resulted in growing flows of goods from low cost-level nations to production and assembly units, as well as to consumers within the vicinity of the production sites. The quickly increasing transport markets, particularly with regard to global container traffic and air cargoes, have reduced transport charges for unit goods significantly over a short time.

For example, maritime freight charges from East Asia to Europe are, absolutely speaking, very low: in full-container transporting, the transport cost of, e.g. one microwave oven to Europe is below EUR 1, and a t-shirt 1 – 2 cents per product.

Various types of commodity flows have different requirements for the logistic chain, which naturally affects the planning of deliveries. In planning transportation flows, the long transport distances, complicated customs and trade regulations and, in many places, insufficient infrastructure should be taken into consideration. The various security risks have additionally brought many new inspections and documentation connected with cargoes and cargo units into international logistics.

4.2 Logistics costs on the macro-level compared internationally

In the developed countries, the total sum of logistics costs proportioned to GNP corresponds to a level of 10 – 15%. The figures are based on various types of assessments, since an established calculation method does not exist for logistics costs in either business nor national economy accountancy

In international comparisons, logistics outlays have seen a decline since the 1980s in relation to the GNP. This has occurred simultaneously with a strong decline in production turn-around times. The decrease in logistics costs is largely due to the management of more effective supply chains. The examination of logistics costs on the national economy level is impeded by e.g. the lack of an integrated entry procedure, difficulty in accessing information and differences in the quality of the source data.. Thus the figures presented in various sources can substantially deviate from each other.

The most recent coherent clarification of the subject is the econometric model by Rodrigues, Bowersox and Calantone (2005). It states that the world's logistics costs totalled USD 6,700 billion (approximately EUR 6,450 billion) in 2002 (ACC). This would correspond to approximately 13.8% of the world's GNP. The cost rise accumulation up to 1997 was approximately 32% and up to the year 2000 about 5%.

In the modelling by Rodrigues et al. (2005), logistics costs declined in many developing countries outside Europe. North America's outlays were the lowest of all in the model (Table 3). In Europe, on the other hand, costs rose e.g. in Germany, Great Britain, Belgium and Denmark (Table 4), which are all strongly involved in foreign trade. For example, in Germany the logistics costs totalled 15.9% in trade and an average of 7% in industry of turnover in 2008 (Straube and Pfohl 2008).

The share of foreign trade may on its part explain the results, since it obtains a rather large weighting in the model. The article does not detail the reasons for changes in costs.

According to Rodrigues et al. (2005), the effectiveness of logistics in developing countries has risen, but a similar rise cannot be noted on the global scale.

The rising trend in logistics costs is discernible internationally in other research studies as well. For example, the *American Council of Supply Chain Management Professionals* (CSCMP) association reckoned in its most recent report in 2008 that logistics costs in the

United States rose 7% during the last year, and the share of logistics costs relative to national production will exceed the 10% limit for the first time during the first decade of the 2000s. The increase in the cost share is, according to the CSCMP, largely explained by the vigorous rise in transport outlays. (Wilson 2008)

Table 5 *Global logistics costs according to their large areas in 1997, 2000 and 2002.*
Source: Rodrigues, Bowersox and Calantone (2005)

Greater area	1997		2000		2002	
	US\$ billion	% of GDP	US\$ billion	% of GDP	US\$ billion	% of GDP
Europe	884	12.2%	1 100	12.8%	1 229	13.3%
North America	1 035	11.0%	1 240	10.6%	1 203	9.9%
Pacific Area	1 459	14.5%	1 989	15.3%	2 127	15.7%
South America	225	14.3%	280	14.4%	272	14.3%
All others	1 492	15.4%	1 778	15.7%	1 902	16.0%
The world	5 095	13.4%	6 387	13.7%	6 732	13.8%

Table 6 *Comparison of logistics costs in the countries of the European Union. (Rodrigues, Bowersox and Calantone, 2005)*

	1997		2000		2002	
	US\$ billion	% of GDP	US\$ billion	% of GDP	US\$ billion	% of GDP
Belgium	27	11.4%	33	11.6%	35	12.1%
Denmark	16	12.9%	20	13.0%	23	13.6%
France	158	12.0%	177	11.9%	186	11.6%
Germany	228	13.1%	323	15.3%	374	16.7%
Greece	17	12.6%	24	12.9%	26	13.0%
Ireland	8	14.0%	19	15.3%	21	14.9%
Italy	149	12.0%	167	11.8%	186	12.2%
The Netherlands	41	11.9%	50	11.8%	56	11.8%
Portugal	19	12.9%	24	13.6%	25	13.4%
Spain	94	14.7%	107	13.3%	124	14.1%
England	125	10.1%	157	10.7%	174	11,3 %

In Sweden, the level of logistics costs is assessed on the macro-level on the basis of company statistics gathered from the operations of businesses by Statistics Sweden as well as national accounts figures. Commissioned by VINNOVA (The Swedish Governmental Agency for Innovation Systems), researchers Elger, Lundquist and Olander (2008) of Lund University assessed the level of Sweden's logistics costs to be approximately 8.5 per cent of GNP in 2005. The Annual State of Logistics Survey for South Africa and Norsk Logistikkbarometeret can also be mentioned, which nevertheless do not offer any direct basis of comparison for this report..

Although Finland's statistical database is on the top global level, corresponding statistical data as such is not available from Finland. In this connection, direct comparison has not been

obtained, but it required separate clarification and the acquisition of associated data from Statistics Finland.

4.3 International comparisons of the enterprises' logistics costs and functions

4.3.1 Report by the European Logistics Association

Since 1982, the European Logistics Association (ELA) has, since 1982, implemented reports on the development of logistics in Europe together with the A.T. Kearney consulting firm. ELA has generated these reports every fifth year. The findings of the report published in 2004 are based on the responses of manufacturing and trading enterprises. The respondents, from less than 200 large European companies, represent the most progressive logistics in their industry: thus, the generalizability of the results is not very good. The surveys have nevertheless been implemented by using a similar type of method, so the time series provides valuable information regarding changes in the operational environment.

For this reason, costs have been referentially presented in this connection, and there is no reason for direct comparison with the results of Finland State of Logistics 2009: ELA/AT Kearney's report-based level in 2003 would appear to be even below half of the cost level of the Finnish respondent firms in this report. In practice, logistics costs can be so low only if the 'value added' of the respondent firms is comparatively high (Fig. 17).

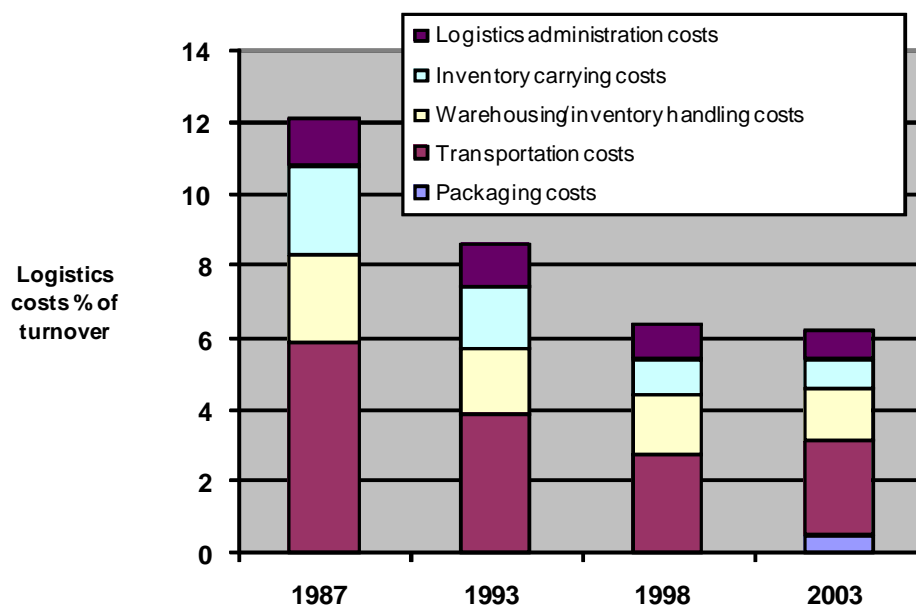


Figure 17 Logistics costs percentage of the enterprise's net sales in the report by ELA/AT Kearney. (European Logistics Association and AT Kearney, 2004)

According to the ELA/AT Kearney report time series, logistics outlays have declined considerably over the last few decades, while the logistics operations of the business enterprises have been complicated by globalization and, for instance, the rapid growth of product variations. More efficient data processing has, on the other hand, reduced logistics costs. Information systems are invested in mostly by the large enterprises, which explains on its part the de-

clining trend noted in the ELA data. The report by ELA/AT Kearney from 2004 is still the most recent of data currently available, but an updated report is set to appear in 2009.

4.3.2 LogOn Baltic project report from the Baltic region

Turku School of Economics coordinated the LogOn Baltic project during 2006–2007. The part-financier of the project was the Interreg IIIB programme under the EU's regional development fund. Supported by 25 partners, the LogOn Baltic project clarified the status of logistics and development prospects broadly over the Baltic region.

During the project, a survey-based study using methods identical to Finland State of Logistics 2009 was performed on the logistics situation in Sweden (Östergötland), Germany (Hamburg and Mecklenburg-Vorpommern), Poland, Russia (St Petersburg), and the Baltic nations.

The survey obtained a rather large number of respondents, totalling over 1,200 business enterprises in the manufacturing, trading and logistics service companies. Due to the similarity of the methods and target groups applied, the survey data and related reporting also offer a strong point of comparison on the level of logistics costs for national logistics reports. (See also www.logonbaltic.info)

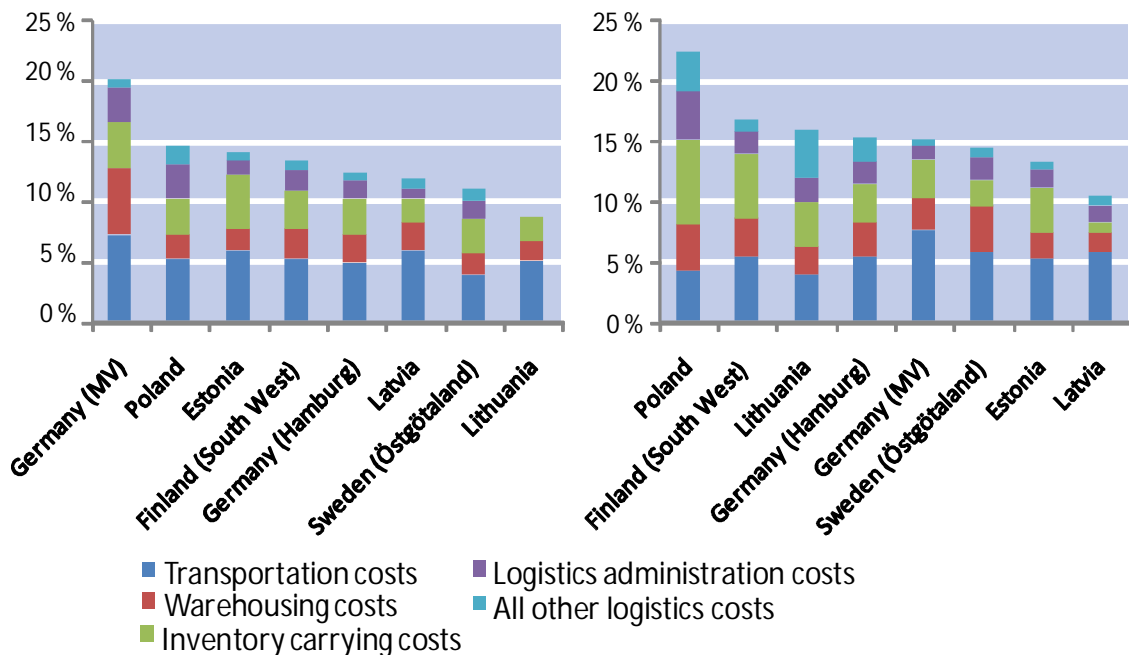


Figure 18 Share of logistics costs relative to net sales in manufacturing and trading enterprises within the Baltic sphere in the LogOn Baltic survey materials (N=574) (Ojala et al. 2007)

On the basis of the findings from the LogOn Baltic survey, it can be stated that the logistics costs of the businesses within the Baltic sphere would appear to be roughly of the same level. Of manufacturers, Mecklenburg-Vorpommern is a significant exception: respondents were almost exclusively small and micro-sized firms, which explains the high cost level. On the other hand, the costs reported by the Lithuanian companies were clearly lower than the others.

The number of respondents and distribution of industries were, however, limited. In Poland, the level of logistics costs in trading is clearly higher than others, while correspondingly it is lower amongst the Latvians. For many Latvian and Lithuanian firms, the concept of logistics costs was, however, new and the number of respondents small.²

In the comparison within the Baltic sphere, the logistics costs for Southwest Finland enterprises rest either slightly above the reference countries with regard to industry or at mid-level in trading.

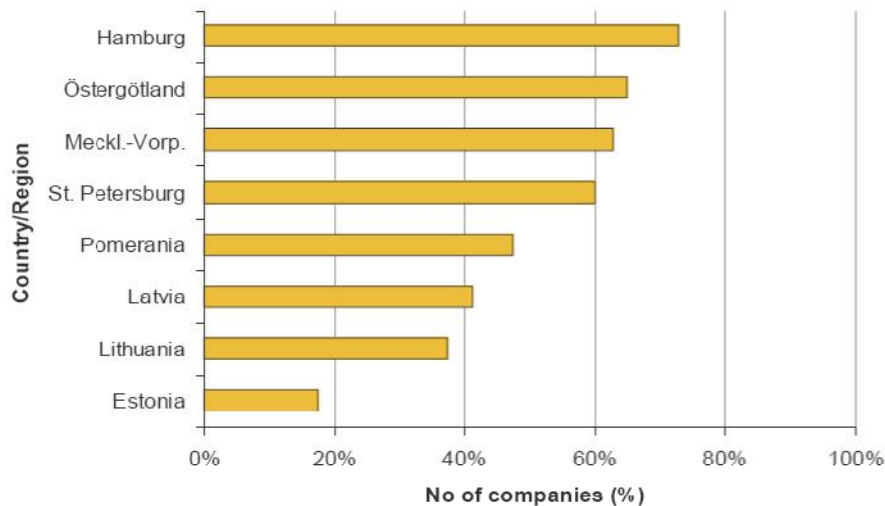


Figure 19 Logistics as one of the pivotal sources of competitiveness within the Baltic sphere, percentage of respondents. (Kersten et al. 2007)

An interesting cross-section of the significance of logistics for the competitive capability of enterprises within the Baltic sphere is also obtained from the LogOn Baltic data. The importance of logistics-based expertise is regarded as great, especially in developed markets such as Germany and Sweden. In these countries, over 60% (in Hamburg, even over 70%) of the respondents regarded logistics as an essential source of the enterprise's competitiveness. The Baltic nations, for example, do not recognize logistics as an important factor for competitiveness to the same extent.

4.4 Finland in the global Logistics Performance Index

For the purpose of assessing the logistic "functionality" or "ease" of foreign trade with regard to nations, the World Bank published a global Logistics Performance Index comparison in November 2007, which embraces 150 countries. The LPI data collection was implemented at Turku School of Economics (TSE) at the start of the year 2007 in accordance with the method developed at TSE.

About 900 international freight forwarding and logistics professionals around the world responded to the Internet questionnaire, each of whom received eight countries to assess in ad-

² The number of respondents was most minimal in Poland (82) and in Latvia as well as Lithuania, in both German regions, and in Östergötland-East (100-130). In Estonia, respondents totalled 182 and in Southwest Finland 322.

dition to their own. The practical areas for assessment included:: frontier crossing and customs operations, traffic and telecommunications infrastructure, availability of international transport, level of logistics-based expertise, ease of tracking deliveries and time-related accuracy in deliveries.

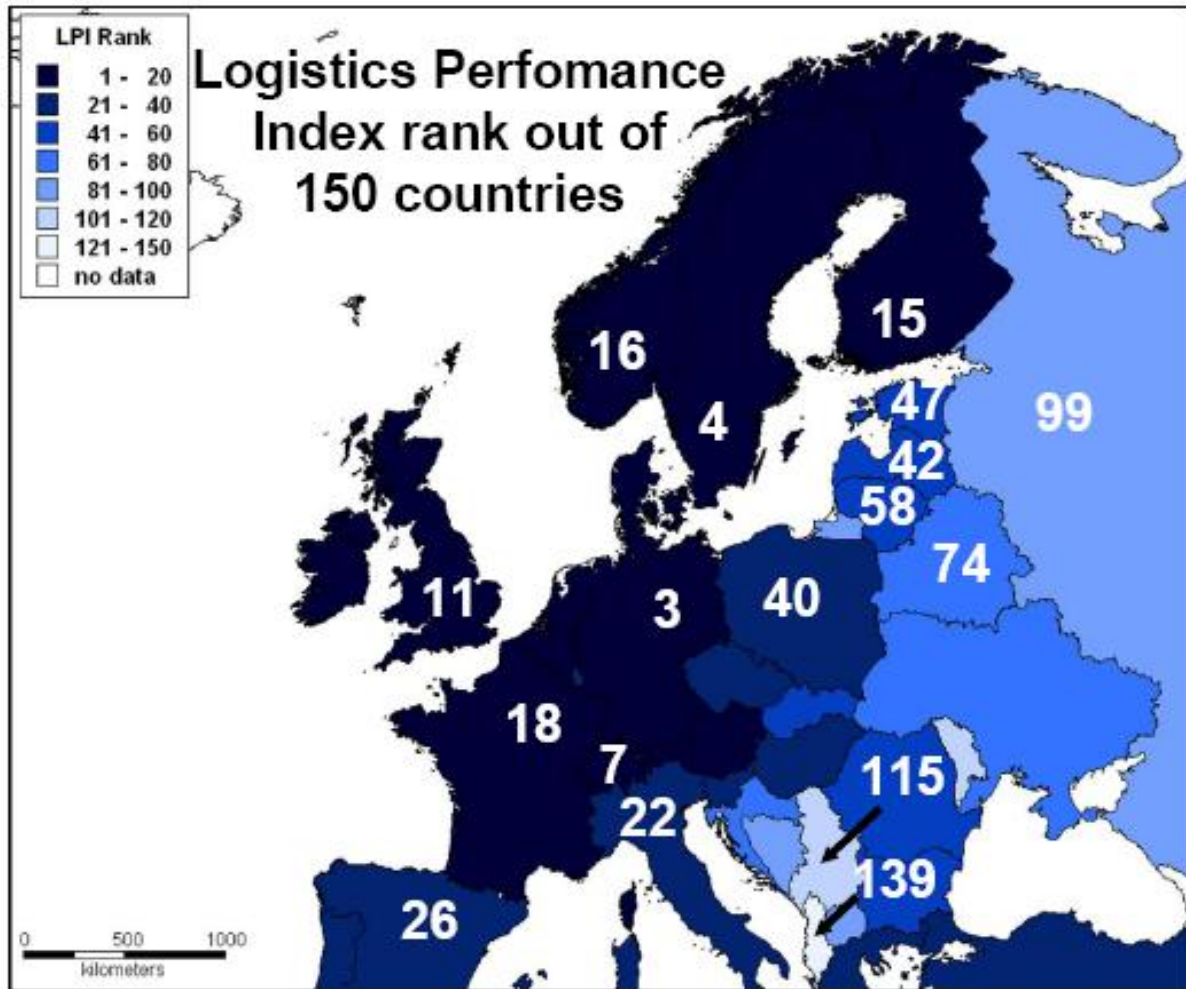


Figure 20 Logistics Performance Index comparison ranking figures in some European countries. (MapInfo: Anna-Maija Kohijoki, TSE; Statistics source: www.worldbank.org/lpi)

The LPI is based on the values of the actors in the field with regard to the functionality of foreign trade logistics for each country. A total of over 5,500 national assessments make up a comprehensive database, which correlates very well with e.g. existing comparison and statistical data describing economic development. The interactive statistics data and report of approximately 30 pages (Arvis et al. 2007) can be found at www.worldbank.org/lpi.

With a ranking of 15th, Finland is within the best tenth in the overall LPI comparison, which is a good position. As to factors affecting overall placement, Finland placed best in the ease of tracking deliveries (2nd). Finland ranked between 14th and 17th in other factors with the exception of 30th in the availability of international transport. This result illustrates Finland's position at an intermediate shipping point from the world's transport mainstreams.

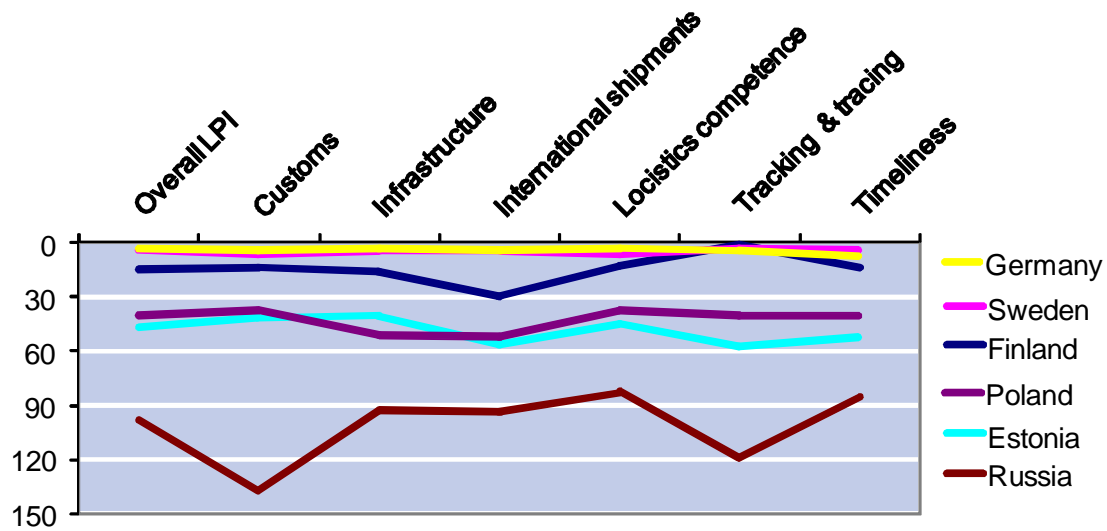


Figure 21 Logistics Performance Index comparison: general index and factors in Finland and some nearby countries. The figures refer to the ranking amongst 150 countries. (www.worldbank.org/lpi)

In the overall comparison of the LPI, Singapore was first, and the developed industrial countries generally ranked well. The differences in both overall and partial ranking are clear compared to, for instance, new EU member nations (e.g. Estonia and Poland). Russia ranked poorly. Its overall ranking was affected particularly by difficulties in frontier crossing and tracking deliveries.

4.5 Finland in international competitiveness indicators

Finland ranks rather high in many international comparisons measuring competitiveness. Of these, Finland ranked 1st for several years in a row e.g. in the Global Competitiveness Index compiled by the World Economic Forum (WEF), and is currently 6th of 134 countries.. Also in the IMD's World Competitiveness Report, the ranking was very high some years ago, but is now 15th of 55 countries. Both indicators are based in part on interviews with economic life representatives and in part on statistical data on the country's economy.

Finland also ranks high in the World Bank's Doing Business comparison, which assesses the general prerequisites and obstacles for business operations. It is mainly conducted as national interviews. In the most recent Doing Business 2009 comparison, Finland ranked 14th among 181 countries.

The World Economic Forum published an interesting and comprehensive comparison on the functionality of foreign trade in different countries (Global Enabling Trade Index, GETI) in the summer of 2008. This involved the collection of a wide base of statistical data as well as available survey data on foreign trade-related transport, frontier crossings and customs activities in addition to WEF's interview data. A total of 10 columns were composed from these, which were used to calculate the overall ranking of each country. Finland ranked 7th in the GETI comparison, i.e. among the best 5% of 118 countries.

Table 7 *Finland and some comparison countries in international comparison of competitiveness and logistics functionality*

Ranking	LPI 2007	LSCI 2008	GETI 2008	DB 2009	GCR 2008-09	WCR 2008
Finland	15	82	7	14	6	15
Sweden	4	30	3	17	4	9
Germany	3	4	8	25	7	16
Estonia	47	110	25	22	32	23
Poland	40	83	45	76	53	44
Russia	99	65	103	120	51	47
N	150	163	118	181	134	55

LPI Logistics Performance Index 2007

GETI Global Enabling Trade Index 2008

DB Doing Business 2009

GCR Global Competitiveness Report 2008-2009

LSCI Liner Shipping Connectivity Index

WCR World Competitiveness Report

The GETI report widely utilized the Logistics Performance Index described above as well as the Liner Shipping Connectivity Index (LSCI) comparison, which is produced by UNCTAD and illustrates the countries' ties with container line traffic.

The LSCI comparison is based on the database of Containerisation International magazine with regard to the frequencies, size, transport quantities and total number of direct connections of container traffic vessels. It should be noted that ro-ro traffic is not found in the background data, which explains the low rankings of Finland (82), Ireland (98) and Norway (94) among 163 countries.

The low position in the LSCI comparison is nevertheless in line with Finland's LPI comparison with regard to the availability of international transport connections. Of the six LPI factors, this dimension was clearly the weakest for Finland (30th). Correspondingly, Ireland (11) and Norway (19) came at the level of their overall ranking for this factor in the LPI (11th and 16th).

The LSCI depicts container traffic connections and the nations' (maritime) transport accessibility in an interesting way. China and its administrative area, Hong Kong, overwhelmingly lead the LSCI comparison with the scoring used over the next countries, which are Singapore and Germany.

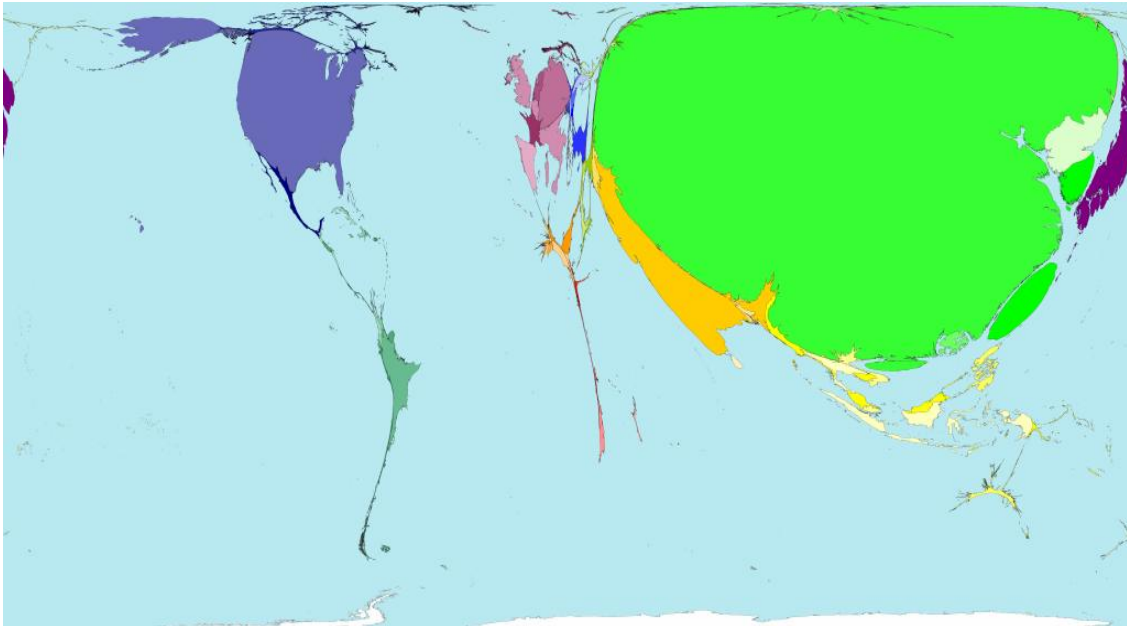


Figure 22 World map surface area weighted by the amount of container traffic handled by each country's ports circa 2003–2004.
(<http://www.worldmapper.org/images/largepng/38.png>)

China's dominating position in the world's container traffic is illustrated in a highly concrete manner by the diagram above, in which the surface area of each country is weighted by the amount of container traffic handled by their ports. With regard to container traffic, the focus of the world's transport markets is clearly in East Asia, China in particular.

5 MARKETS IN LOGISTICS SERVICES

Essential observations in brief:

- Global logistics markets have increased during the first decade of the 2000s by 6–8% per year, estimates of their size display large disparity
- The added value of the transport sector in Finland EUR 15.4 billion in 2007, growth rapid
- Increase in foreign trade deficit in transport services, totalling EUR 1.8 billion in 2007.

5.1 The levels of logistics operations

The freight traffic and logistics systems can be presented as a four-level model. The levels of the model interconnect through three different markets. The lowest level, traffic infrastructure, offers capacity for traffic markets, utilized by transport operators' vehicles. A considerable part of traffic infrastructure supply is produced with public funds, and infrastructure users seldom pay directly for the capacity they use. (Fig. 23)

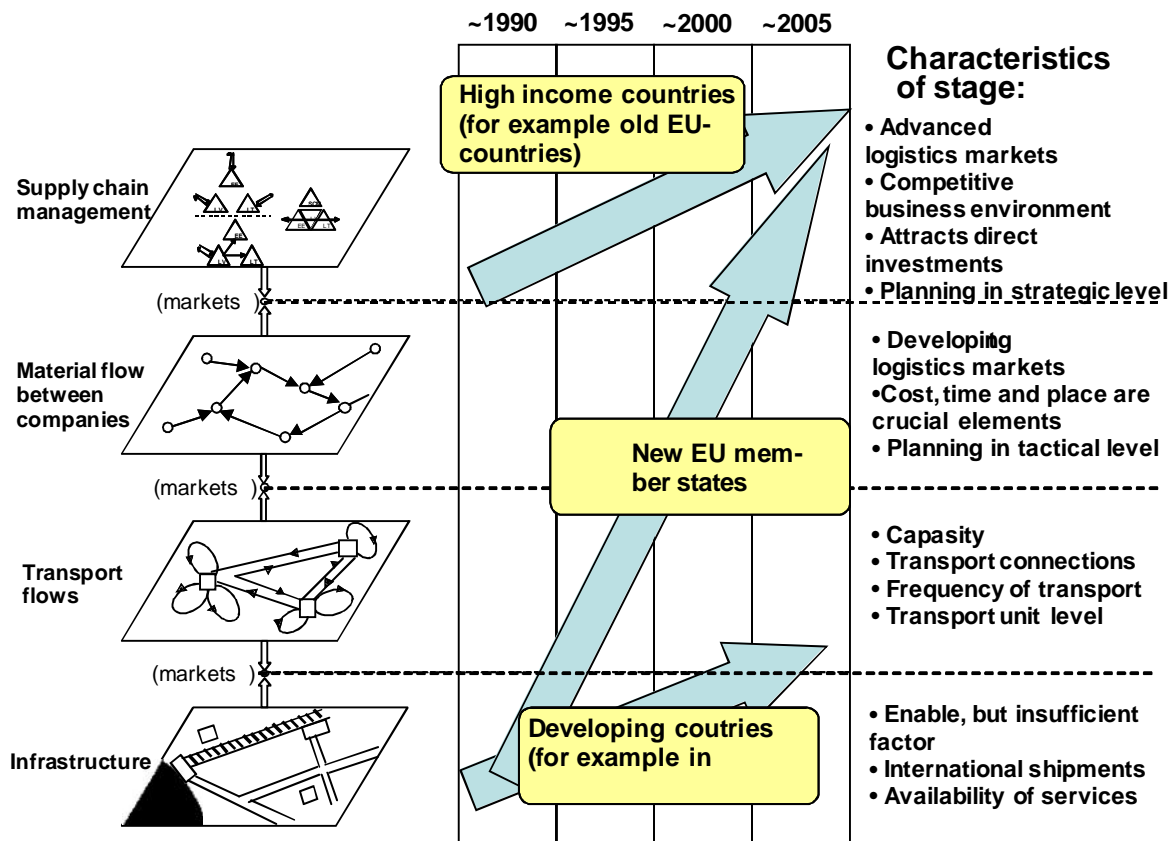


Figure 23 Transfer of enterprises' requirements from the development of infrastructure to the management of the supply chain as a result of economic growth. Years for reference only. (Ojala, Andersson, Naula 2008)

On the following levels, the needs of transport customers create demand for transport markets, where (transport) service providers and buyers meet. The figure also illustrates the focus of the enterprises' requirements in countries of varying development levels.

The fourth level depicts the management of the supply chain by companies that purchase logistics services. Depending on the logistics solution, the purchasing companies require various types of services connected with material and information flows as well as with the logistics organization and distribution channel. The logistics service enterprises endeavor to generate these as competitively as possible.

In order to operate, not only the company's internal resources but sufficient traffic infrastructure and well-functioning logistics services as well are required by international supply network logistics. The logistics functions of global supply networks are indeed frequently concentrated on countries in which the transport markets are well-developed and high-quality services are widely accessible at a competitive price.

5.2 Estimates of the size and structure of international logistics markets

5.2.1 Global logistics markets

Worldwide logistics costs were examined in section 3.2. (Rodrigues et al. 2005) On the basis of the results, overall costs were estimated at approximately USD 6,700 billion in 2002 (approximately EUR 6,400 billion according to the 2002 rate of exchange). The figure also includes the enterprises' logistics costs for operations generated by the companies themselves that are not purchased from logistics services markets.

The ratios of the logistics cost components have remained the same in various studies. According to rough estimates, about 1/3 of logistics outlays are transport-related, about 1/4 are incurred by warehousing, and approximately 1/4 are warehouse-committed capital costs. The remaining amount of approximately 15% represents other logistics expenses. Calculated in this manner, the world's transport costs in 2002 totalled approximately EUR 2,100 billion. Based on the outsourcing figures, 3/4 of this estimate are market purchases and approximately 1/4 are generated internally. The global markets in freight traffic would thereby be approximately EUR 1,600 billion.

Worldwide warehousing costs are estimated to be approximately EUR 1,675 billion, of which about 1/2 is generated as internal costs and the rest is purchased from the markets. The size of warehousing markets would thereby total EUR 840 billion.

By combining these figures as well as the estimated share of other logistics cost items, the rough magnitude of global markets-based logistics services purchased from the markets (without enterprises' internal production) came to EUR 3,000 billion in 2002.

The combined effect of economic growth and cost development has increased logistics world markets by an estimated 6–8% per year. According to this growth figure and initial value, the figure respective to the market for logistics services purchased from the markets would have increased in 2008 to at least EUR 4,000 billion but possibly even to EUR 5,000 billion.

Other disparate have also been presented on the size of the logistics markets. The estimate published by Datamonitor (2009) in February 2009 on the size of world logistics markets was USD 804.6 billion in 2007. This figure is considerably smaller than the estimates made by Rodrigues et al. (2005) and Klaus and Killen (2007)

The greatly deviating estimates are mainly explained by the fact that a consistent method for determining the size of logistics markets does not exist. In the broader definitions, the concept involves a large group of various types of logistics-related functions and services. This has resulted in larger estimates of the size. Some estimates also include operations and services connected with the logistics infrastructure. The used background data also varies.

Alongside air freight and courier operations, third-party logistics services form the internationally fastest growing market segment. It is difficult to assess the size and growth of these markets, because it is unclear which enterprises should be included in determining the size of the industry and how large a part of the turnover of the various firms should be relegated under the same. The use of third-party services seems to vary considerably depending on the country. This can partly be explained by differences in defining the concept. For example, third-party services are understood to be a long-term solution in Europe, contrary to USA or Australia. The use of third-party services is, however, understood more as a strategic than operative solution.

During the last two decades, the markets for logistics services have not only internationalized as well as seen significant centralization. The economic and financial crisis at hand is set to considerably accelerate this development throughout the industry. The centralization development is also expected to continue in capital-intensive operations such as air traffic, shipping and partly also in port operations, where the centralization rate is already high.

Table 8 *Shares of the five largest enterprises in logistics services-related world markets (road transport in Europe) in 2005 and 2008.*

	2005	2008
Port services and stevedoring	35 %	40 %
Air freight	33 %	38 %
Sea container traffic	20 %	37 %*
Contract logistics (3PL/4PL)	10 %	15 %
Road transport in Europe	7 %	8 %

The table above illustrates the situation. The figures have been collected from various sources for the purpose of this clarification. The percentages refer to the estimated share of the five largest enterprises in each of the industry's world markets.

5.2.2 Europe's logistics markets

Commissioned by Germany's logistics association (BLV), Klaus and Kille (2007) have estimated the size of the logistics markets in Europe. All of the European Union's 27 member nations were involved in the clarification, as well as Norway and Switzerland ("Europe 29").

The size of the logistics markets in Klaus and Kille's clarification (2007) refers to both production value of logisticsservices enterprises and the internal (logistics) costs connected with the management of the supply chain in the manufacturing industry and trade. The definition and, in particular, the method of collecting information deviates from those used in Finland State of Logistics 2009. In the report at hand, the level of logistics costs is based exclusively on the share of net sales reported by the manufacturing and trading enterprises concerned.

The total calculated size of the markets in the "Europe 29" nations was estimated to be EUR 800 billion in 2005 (Klaus and Kille 2007). Of this, the share of freight transport was approximately EUR 344 billion, i.e. 43%. Warehousing costs were 26% and the share of inventory holding costs 21%, while the two others made up 5% for each. The overall GNP costs as proportioned for the "Europe 29" nations would correspond to approximately 7% of GNP (Fig. 24).

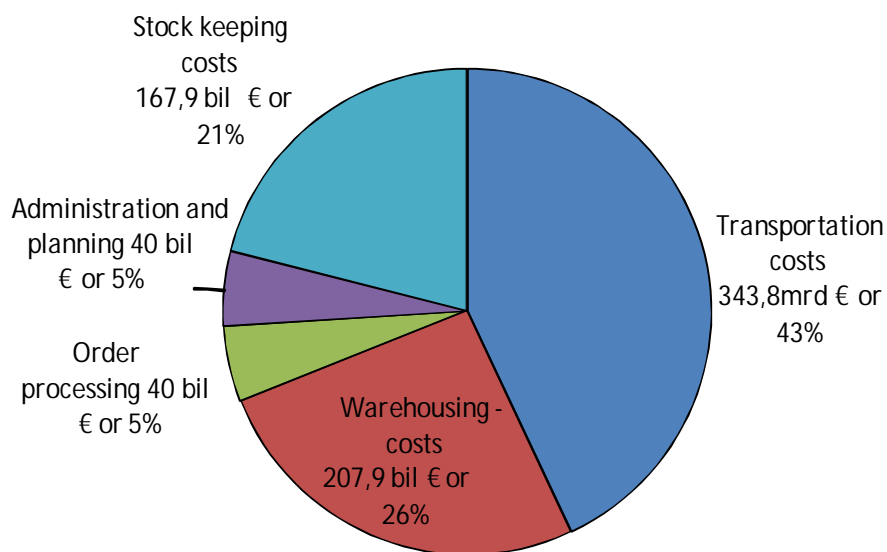


Figure 24 Estimated size of logistics markets in all EU 27 countries as well as in Switzerland and Norway in 2005, total: EUR 800 billion incl. the internal logistics (ACC) operations of industry and commerce. (Klaus & Kille, 2007)

The bulk of the overall markets in freight traffic, EUR 344 billion, was generated from road transport, i.e. EUR 238 billion (69.2%). The share of rail traffic was only EUR 16.4 billion (4.8%). Other transport modes make up the remaining 26 percent of the markets.

Estimated at EUR 175.7 billion, Germany is the overwhelmingly largest logistics market area in Europe. Finland's logistics markets were estimated at EUR 20.1 billion in 2005. Proportioned to GNP, this would correspond to 12.8%. A larger ratio was found only in Latvia (20.8%) and Estonia (17.3%). The size of Finland's market was therefore estimated as large. This is affected in part by the substantial transit traffic, which is even more evident in the high ratios of Estonia and Latvia.

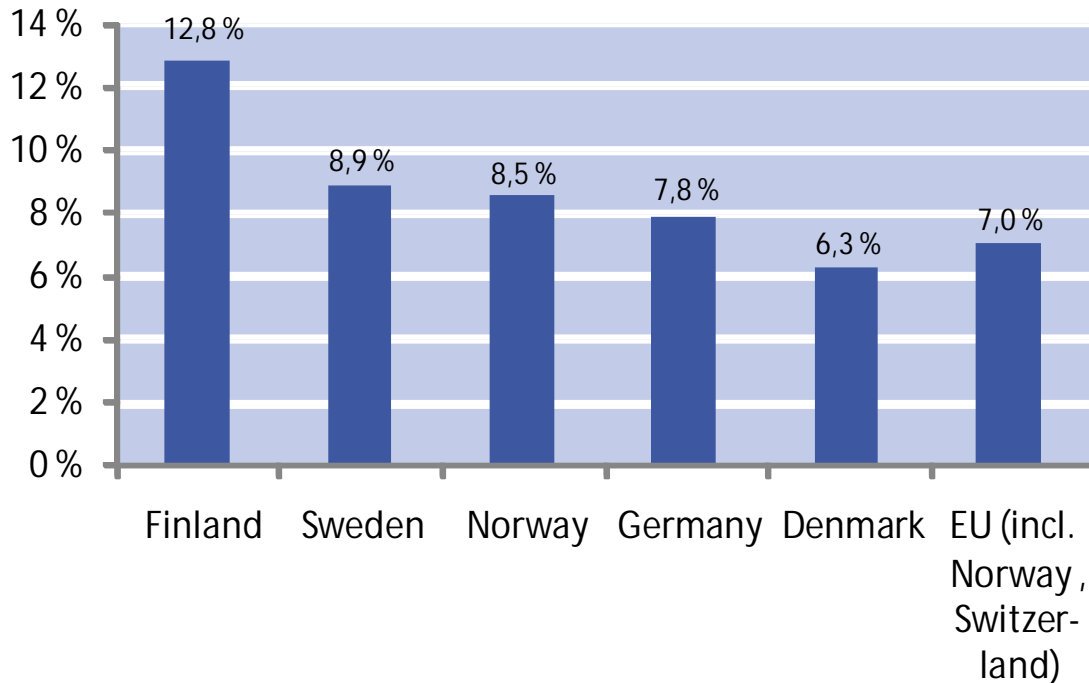


Figure 25 Size of logistics markets (incl. the internal logistics operations of industry and commerce) proportioned to GNP in select countries in 2005 (Klaus & Kille, 2007)

5.3 The traffic sector in Finland's national economy accountancy

In 2007, almost 8% of the business enterprises operating in Finland functioned in the transport, warehousing or telecommunications (Statistics Finland). The logistics industry can therefore be regarded as a significant operator in Finland. According to Eurostat statistics, the total net sales of Finnish logistics businesses in 2006 was over EUR 17 billion, and the industry employed almost 115,000 people in over 22,000 enterprises. In Annex 11, the size, extent and performance of logistics companies that are Finnish or operate in Finland are compared with the corresponding figures of certain comparison countries.

Finland's large surface area and, conversely, the transport intensity of Finnish industry is visible in, for example, road traffic transport performance, which in 2006 accumulated over 25 billion tonne-kilometres in domestic traffic and approximately 4 billion tonne-kilometres in foreign traffic.

By 2007, Finland's industrial transport intensity had fallen to below half of what it was in the mid-1990s. In 1995-1996, 1.4 tonne-kilometres were required for one-euro increment³ value (adjusted to the monetary value in 2002). With the rapidly increased 'value added', an aver-

³ Added value (gross) refers to the value generated by the unit participating in production. It is calculated in market production by reducing the intermediates (goods and services) of the unit's yield in production and in non-market production by adding up wage-earner compensation, fixed capital consumption and possible production- and import-related taxes. (Statistics Finland)

age in general industry of only 0.6 tonne-kilometres were required in 2007 for similar added value, and in the technology industry only 0.1 tonne-kilometres. (LVM/Ramboll, 2009)

The industrial structure and isolated location from Finland's logistic perspective are also visible in export and import marine traffic transport. Compared to e.g. Poland of 38.5 million inhabitants and taking into consideration Finland's size with regard to its national economy and population, the quantities of goods travelling in marine traffic between Finland and foreign countries are substantial: approximately 51 million import tonnes and 41 million export tonnes in 2006 (cf. Annex 11).

In national economy accountancy, transport, warehousing and telecommunications form a main sector with integrated entry in international statistics. The internal logistics operations in industry and commerce are included, conversely, in the figures respective to the industries mentioned above.

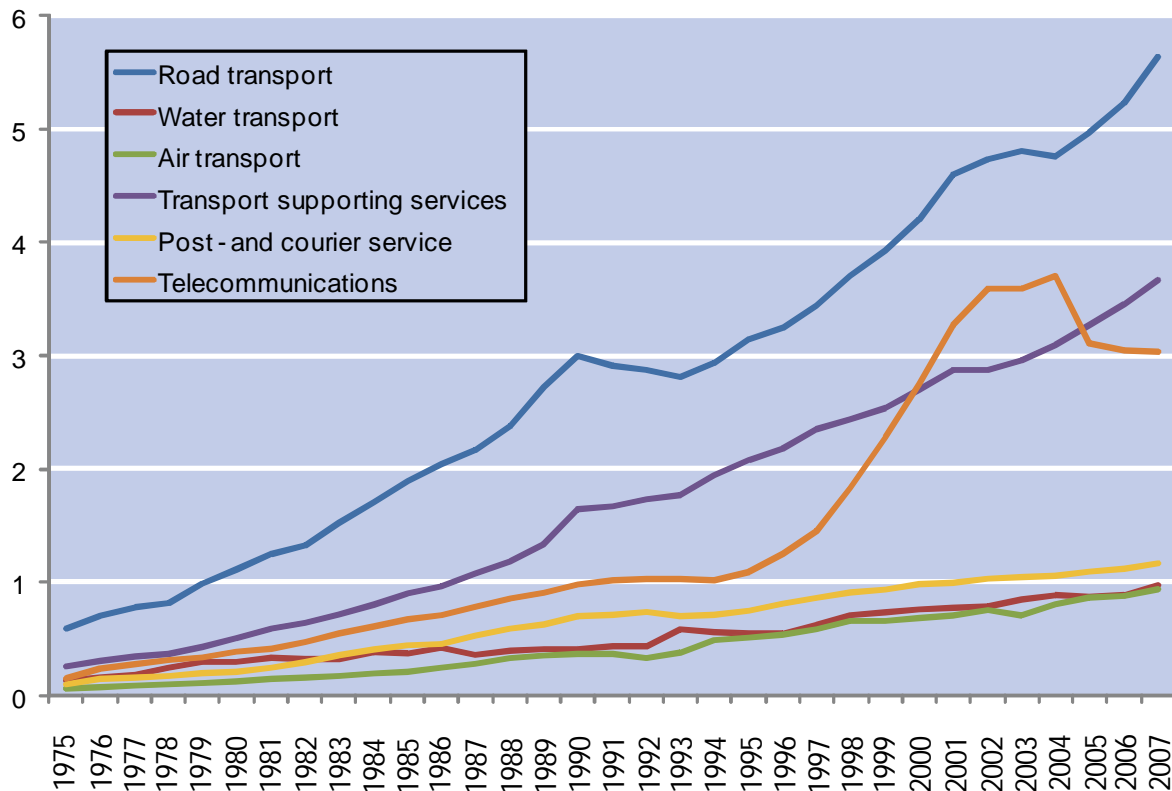


Figure 26 Communications/traffic-related added value of service functions in Finland 1975-2007 in billions of euros with current prices, incl. the public sector. (Statistics Finland)

The added value of production in the Finnish traffic/communications sector has developed rapidly. In 2007, the added value of the whole sector was, according to Statistics Finland, EUR 15.4 billion in total, i.e. 9.8% of overall production-related added value (EUR 156.9 billion). The added value of the businesses in the transport and communications sector totalled EUR 13.1 billion. This is not the same as the total calculated net sales of the industry, as the intermediates of production have been deducted from the figure. The growth in added value of telecommunications services within transport and communications services has come

to a halt and even turned to decline. The added value of the industry in 2007 was EUR 3,038 million.

Of the industries concerned, traffic and functions serving the same have increased the fastest. (Fig. 26). The added value of land traffic in 2007 was EUR 5,638 million. This figure includes land traffic, road and rail traffic, and a very small amount of pipeline transportation. The added value of operations serving traffic in 2007 was EUR 3,671 million, which is composed mainly of warehousing, terminal, port, freighting and forwarding services.

The added value of postal and courier-related operations in 2007 was EUR 1,171 million, and the industry is growing slowly in the same manner as waterborne and air traffic. The added value of waterborne traffic in 2007 was EUR 966 million and that of air traffic was EUR 939 million.

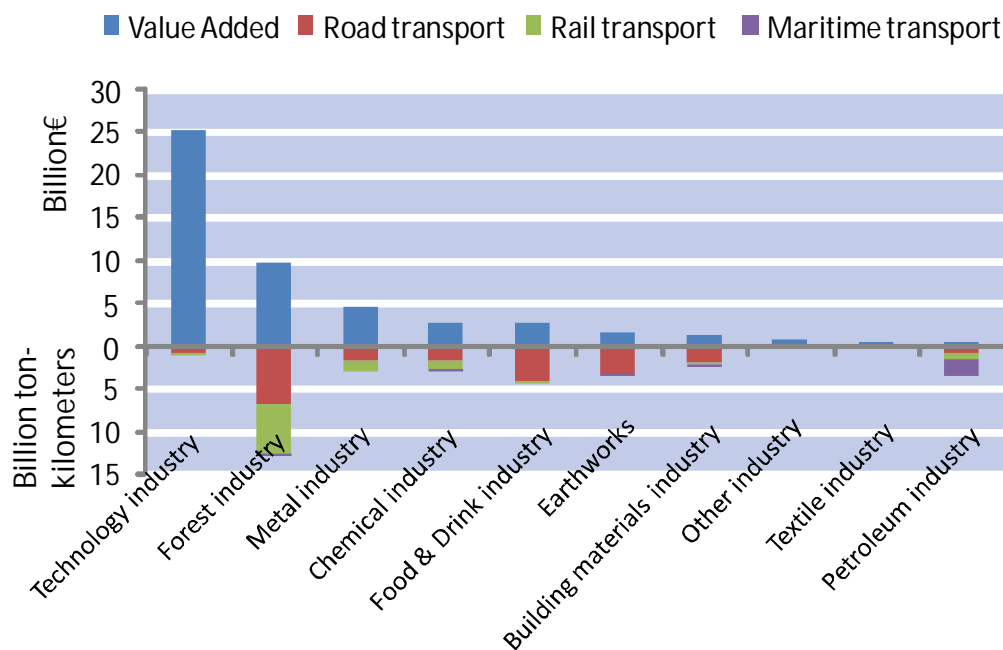


Figure 27 Added value of the industry and the transport performance of various transport modes in 2007 (according to the monetary rate in 2002). (Ministry of Transport and Communications Finland/Ramboll, 2009)

The significance of road transport is emphasized also in examining transport performance by industrial sector and the corresponding added value in 2007 (Fig. 27). The figures refer to transport performance in Finland and do not include foreign trade-related transport. Subsequently, the shares of marine and air traffic are small. Of Finland's export as a whole, over 10% of its value is recorded in the foreign trade statistics as air freight, which the technology industry in particular uses a great deal.

The forest industry utilized road and rail transport the most. Its share of industrial production was 19% in 2007. The technology industry, which produces the largest added value, generates a small amount of transport activities.

Entry of the logistics services required outside Finland in Finland's national economy accountancy depends on e.g. the agreement between business partners on transport and warehousing costs and production or distribution unit practices abroad. On the other hand, transit traffic services proceeding via Finland are entered for the most part in the national accountancy, even if the goods do not cross the customs border.

Due to the immaterial character of services, recording practices for foreign trade deviate in part from those observed in the trade of goods. The overall figures nevertheless indicate that after the year 2000, foreign trade in freight traffic services has reached a deficit of over EUR 1 billion, and already almost EUR 1.8 billion in 2007. This is explained in part by the structural change in the logistics industry and the related growth in foreign ownership as well as the transfer of industry to increasingly international markets. (Fig. 28.)

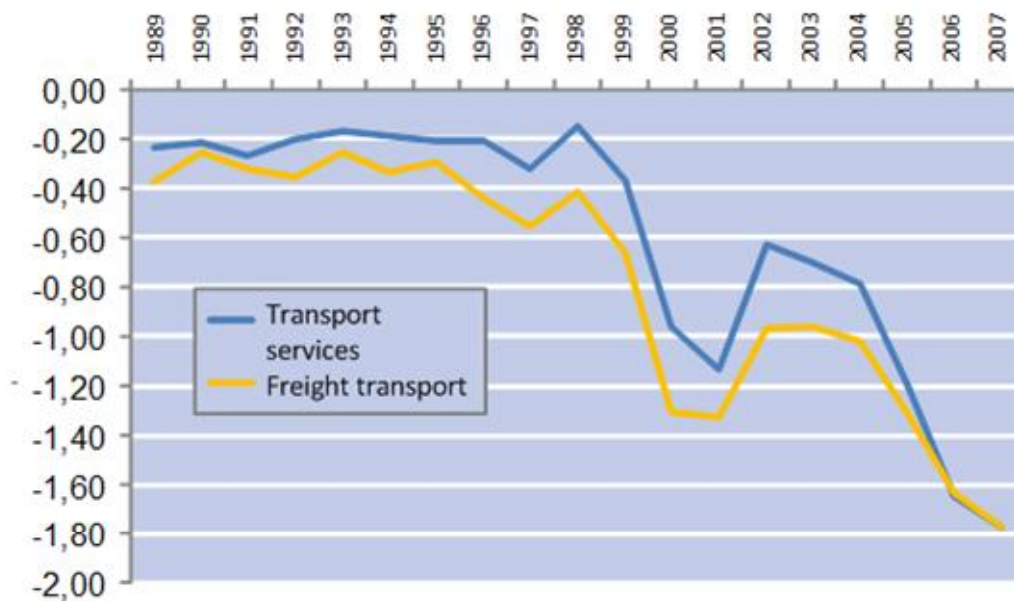


Figure 28 Balance of Finland's trade in services: total transport services and freight transport services in billions of euros 1989–2007, current prices (Statistics Finland)

Of the states at the edge of the Baltic, Denmark (particularly the Maersk Group), Norway (shipping) and the Baltic nations (transit traffic), among others, are significant net exporters of transport and warehousing services. Along with Finland, only Germany is a net importer of transport services. For Finland, which is dependent on foreign trade, highly functional logistics markets are, however, a more important matter than currency earnings.

6 RESULTS FROM MANUFACTURING AND TRADING COMPANIES

Essential observations in brief:

- Pivotal significance of logistics with regard to the level of customer service and profitability
- Logistics costs have risen after 2005 and are approximately 14.2% on average of the enterprise's net sales.
- Outsourcing of logistics operations has become common in virtually all functions
- The most important development requirements of industry and commerce are connected with the improvement of customer service and the reduction of logistics costs
- The priorities of the development requirements have shifted investments from demanding development projects to the management of basic logistics
- Current issues such as the reduction of the ecological footprint and the management of security risks are being prioritized by very few enterprises
- The share of satisfied enterprises with regard to the base locality's operational prerequisites has declined in most of Finland. The share of those satisfied has nevertheless risen in Uusimaa and South Ostrobothnia
- About half of the respondents regarded the weakening in demand as the largest threat in the future, the rise in costs almost one-fifth

6.1 Significance of logistics to manufacturing and trading enterprises

Logistics can be said to be a significant part of the business activity carried on by enterprises. In this report, respondents were requested to take a position on four varying claims concerning the significance of logistics to the company, with regard to various dimensions. In Fig. 29, the distributions of answers from manufacturing firms on the role of logistics to their profit, standard of customer service and competitive edge are presented, according to the size of the enterprise.

In addition to this, the respondents' view of logistics as a priority of top-level management is set forth. The results mainly follow a policy suggesting that medium- and large-sized enterprises consider the role of logistics to be more important, than the smaller companies. This is explained in part by the increasing complexity of the supply chain with increase in company size, whereupon the significance of functional and cost-effective logistics is emphasized. This is also supported by the fact that the largest differences in the responses of the large-sized and micro-enterprises emerged in asking about the significance of logistics to the profitability of the company.

The significance of logistics is most similarly conceived on the level of customer service, with regard to which over half of all respondent groups (over 80% of the large- and mid-sized firms) were of exactly the same view on the question. This outcome is logical to the extent that poorly managed logistics is always immediately seen by the customer, irrespective of company size. The smallest section of the respondents regardless of company size disagreed that logistics is the priority of top-level management. Although logistics indeed affects the organization on every level, the distribution is slightly surprising in comparison to that of the response distributions concerning other questions, where the significance of logistics is seen as substantial in matters which represent the core interest of the top level.

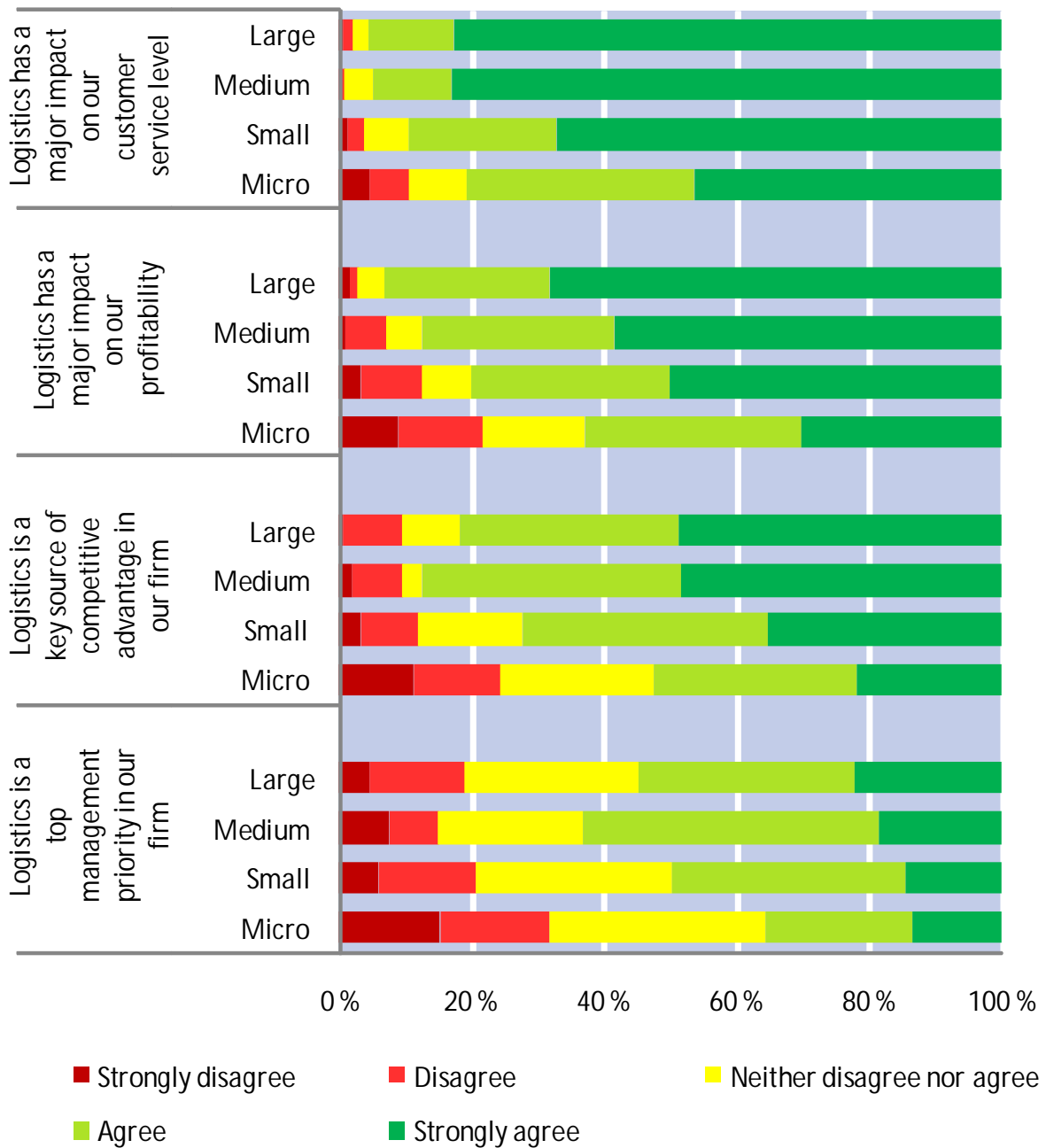


Figure 29 Perspective of manufacturing companies on the significance of logistics to the enterprise (N micro=488, small=145, medium-sized=92, large=126)

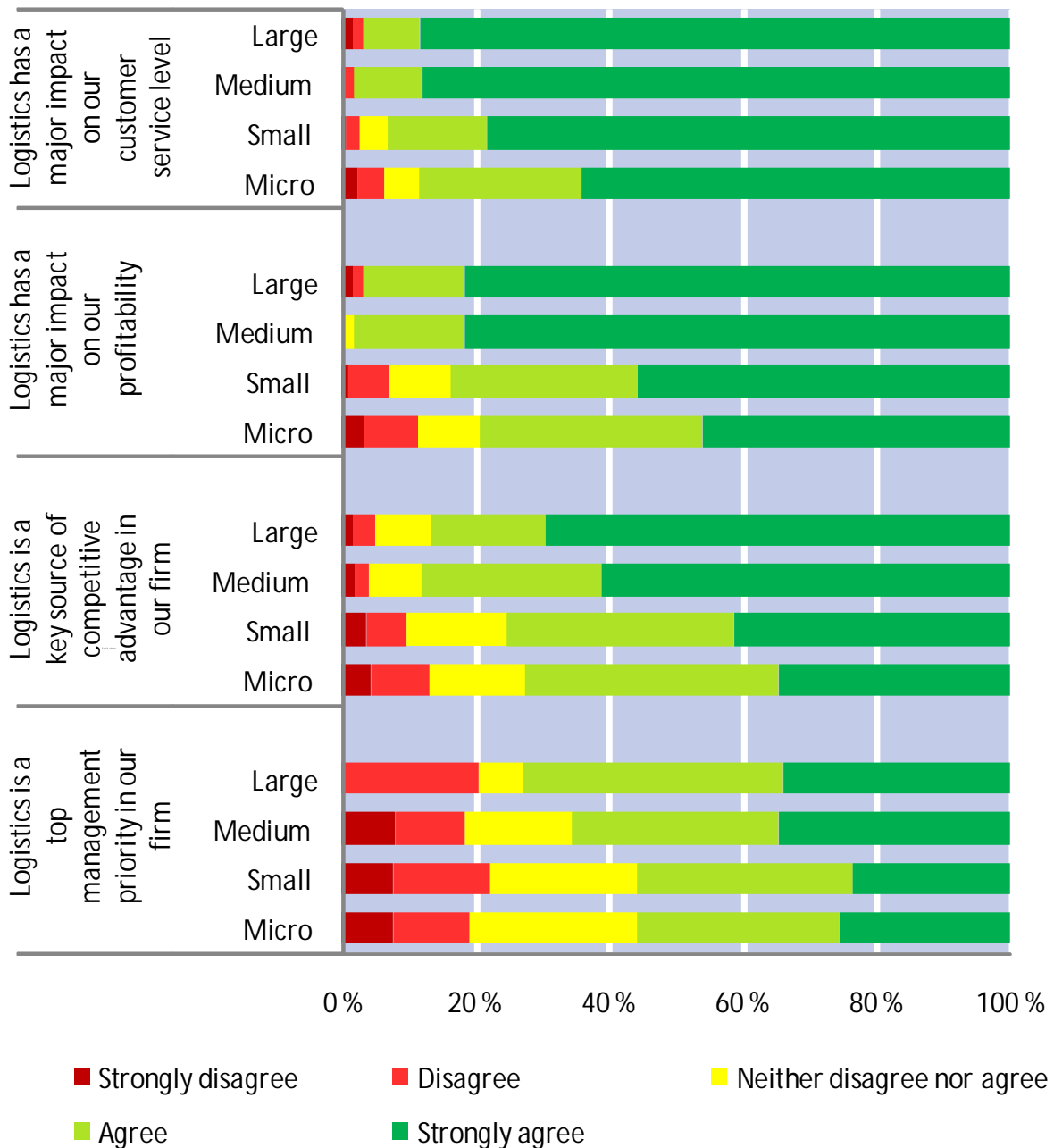


Figure 30 Perspective of trading companies on the significance of logistics to the enterprise (N micro=407, small=180, medium-sized=49, large=59)

Fig. 30 presents the response distribution on the part of the trading firms. The results are quite similar with the manufacturing responses with regard to both size of enterprise and what was asked. It is noteworthy that enterprises in the trading industry consider the importance of logistics to be greater to the profitability of the company than manufacturing firms do. This may be explained in part by the fact that the transfer of variable logistics costs in the trading to prices for customers is more challenging than in industry, where their impact on profitability is greater. The large business enterprises also regard the significance of logistics as a source of competitive advantage to be greater than the manufacturing companies. This is due in part

to the character of the trading industry: as a result, rapid deliveries and effective transport solutions are more important sources of competitive advantage than in industry.

6.2 Logistics costs for enterprises

The level and structure of logistics costs for enterprises appear to have changed somewhat compared to the previous logistics report (2005). The share of logistics costs for enterprises has risen in both manufacturing and construction as well as in trade. Transport costs are still the largest single logistics cost item. Their share in 2008 was, on average, 5.5% of the companies' turnover, while the corresponding figure in 2005 was 4.1%.

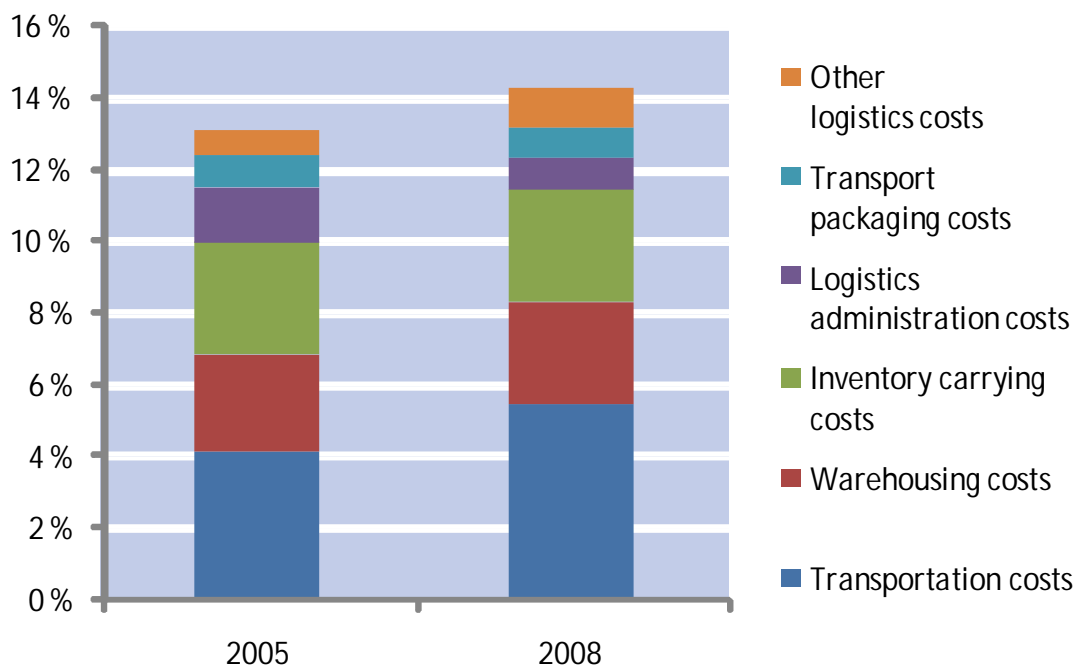


Figure 31 Logistics costs of manufacturing and trading companies weighted by respondent enterprises' turnover and turnover of the industries. N =1291

In 2005, the share of small-sized and micro-enterprises respective to turnover was approximately 2.5 percentage points higher than large enterprises. In 2008, the corresponding share was approximately 16% on average, regardless of the size of the company. The industry of the enterprise and, for instance, the transport intensiveness of operations would appear to explain the differences better than before. The logistics costs of individual industries are featured in annexes 9 and 10.

This development is at least partly explainable by the fact that medium- and large-sized enterprises function internationally more often than smaller ones and are thereby more susceptible to changes in the global economy.

6.2.1 Level of logistics costs from province to province

Fig. 32 illustrates the share of enterprises' logistics costs from turnover in various geographical areas in Finland, respective to both the overall level of logistics costs and transport outlays. It is plain from the figure that logistics costs both generally and specific to transport are the lowest in the provinces in the coastal region along the Gulf of Finland.

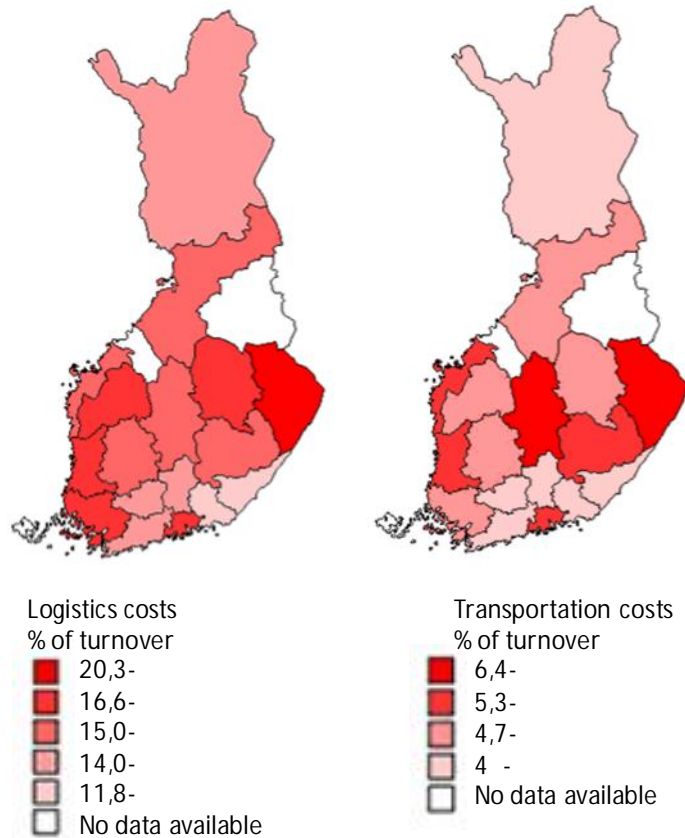


Figure 32 Share of logistics costs and transport outlays from turnover on a province-to-province basis in 2008, industry and commerce total (N=1291)

The highest shares of transport costs from turnover are found in the central and eastern parts of the country. The phenomenon is explained in part by the various structures of the industries from one area to another. From the eastern and west coast provinces, there are also short transport journeys to critical domestic market areas as well as to connections linking up with international markets, such as ports and airports.

6.2.2 Level of logistics costs in manufacturing and trading enterprises

Of the factors affecting logistics costs, what has risen the most as based on a comparison between the 2005 and 2008 survey data is the share of transport costs. There are three main reasons behind the rise in transport costs. First of all, the price of crude oil until recent times continued its vigorous rise and was transferred to fuel prices. Secondly, the long continued boom in the world economy and even some degree of overheating have impacted the balanced condition of the transport market, particularly in the form of dynamic growth in the demand for

transport services, which has naturally raised freight rates considerably (see for example Annex 17 for container price development), right up to the latter half of 2008. Thirdly, the salary costs of logistics services-based production in Finland have risen faster than the general development of costs in 2007–2008, as in many other countries.

The boom in the economy has particularly affected the transport outlays of Finnish firms functioning in international markets. The proportion of logistics costs in these companies has clearly climbed more than in other respondent groups.

The second largest logistics cost item for manufacturing enterprises is inventory carrying costs, whose share in the large companies totals 3.7% on average and represents 5.0% of turnover in small enterprises; i.e. approximately one percentage point more than in 2005. The share of warehousing costs has also risen somewhat by reference to the previous report period. It is noted that other cost items, administrative outlays, packaging costs and other logistics-related costs have remained unchanged.

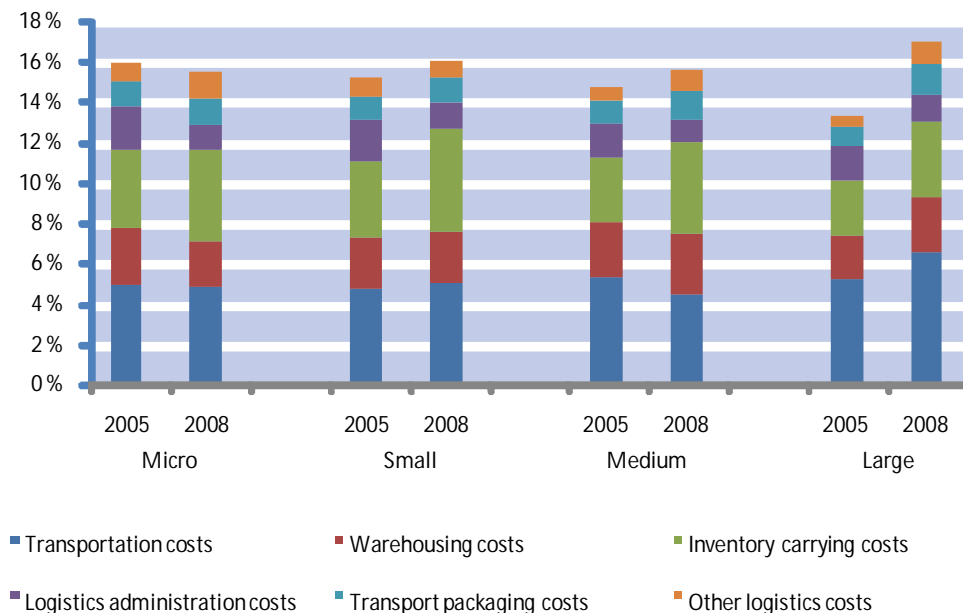


Figure 33 Logistics costs: share of turnover based on size of enterprises in 2005 and 2008, manufacturing enterprises and construction (N=780)

The share of logistics costs from turnover in trading has also increased by comparison to 2005. Contrary to the manufacturing companies, the size of the enterprise appears to be an essential exponent in assessing cost level. The rule of thumb is that costs are lower the larger the enterprise concerned. An exception to the above is made up by the group of medium-sized enterprises whose logistics costs have risen significantly (from 12.9% to 16.4%) by comparison with the previous report. An explanation for this phenomenon can at least partly be regarded as the fact that medium-sized enterprises are typically a rapidly growing group of companies subjected to many growth-derivative costs linked with, e.g. the increasing complexity of the supply chain and operational network. Nevertheless, these firms are too small to gain the benefits conferred by adequate size.

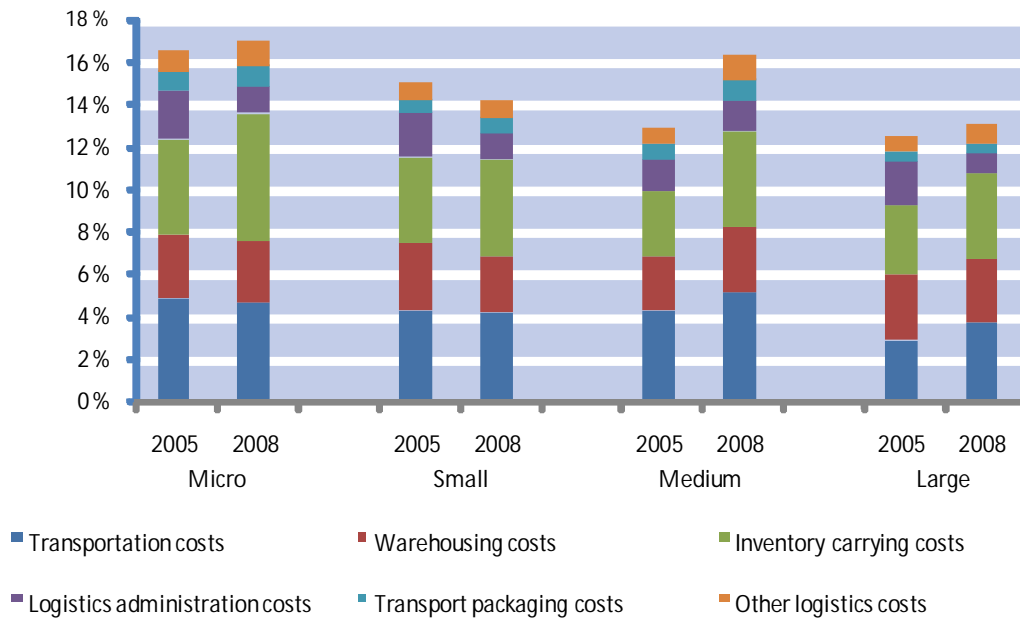


Figure 34 Logistics costs: share of turnover based on size of enterprises in 2005 and 2008, enterprises in the trading (N=511)

With regard to the level of the various components of logistics costs, it is noted that transport costs and inventory carrying costs also make up the largest cost items for enterprises in trading. In the large trading companies, transport costs are slightly below 4% (3.7%) of turnover, while these may reach over 5% of turnover in the medium-sized businesses. Inventory carrying costs vary between the micro-enterprises' 6% and the large companies' 4%. It can be generally noted that logistics costs for trading enterprises are slightly lower than for those engaged in industry and construction.

6.2.3 Logistics costs and the enterprise's internationality

One of the essential findings from the report of the previous year was the significance of companies' internationality to the level of logistics costs. Logistics costs for international businesses and companies engaged in export were somewhat lower than for enterprises functioning only in the domestic market.

The situation in 2008 with regard to the data has turned to the contrary. In 2008, logistics costs for enterprises operating only in Finland were approximately 14% of turnover, while for export firms they were approximately 17.4% and approximately 17.6% of turnover for international companies.

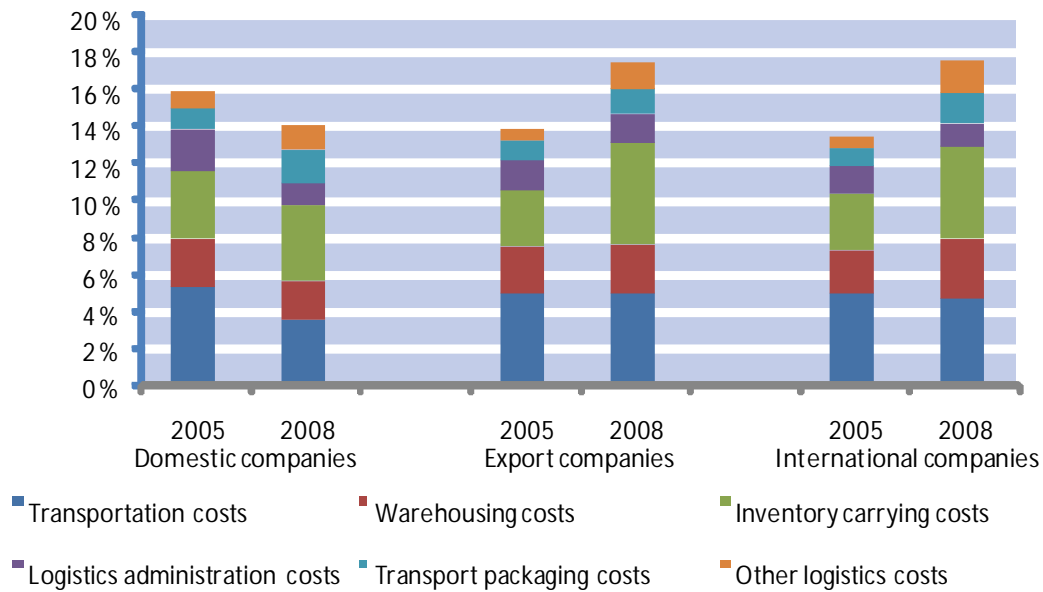


Figure 35 Impact of internationalization on the logistics costs of manufacturing enterprises in 2005 and 2008 (N: Domestic enterprises=540, Export enterprises=139, International enterprises=101)

Change in the results is explained by the fact that, as a result of internationalization, the transport distances for the companies are longer than before and the supply chains are more complicated. Both factors have a tendency to raise expenses. In addition, the export companies and international companies have generally faced international economic trends particularly in the transport markets much faster and more comprehensively than the firms that have only operated in the domestic environment.

6.2.4 Special features of logistics costs and the enterprise level

The size of the enterprise, industry and degree of internationalization in addition to the mode of production incorporated by the company can be applied as elements explaining the level of logistics costs. On the basis of production mode, the highest logistics costs would appear to be borne by companies that manufacture their products for sale from the warehouse (Make To Stock, MTS), whose logistics costs are approximately 17.5% on the average of the enterprise's turnover.

Also on the basis of their orders from customers, the costs of companies that perform assembly or product manufacture are rather high – 16.3% Make To Order (MTO) and 15.8% Assembly To Order (ATO) –for enterprises that engage in these types of production. In all the above-mentioned groups, the share of logistics costs have risen slightly by comparison to the previous report.

The share of logistics costs in companies in two other groups – business enterprises that engage in project-type production (Engineer To Order, ETO) and those that sell their own production capacity to others (Capacity Selling, CS) – would appear to have even declined to some extent, according to the results.

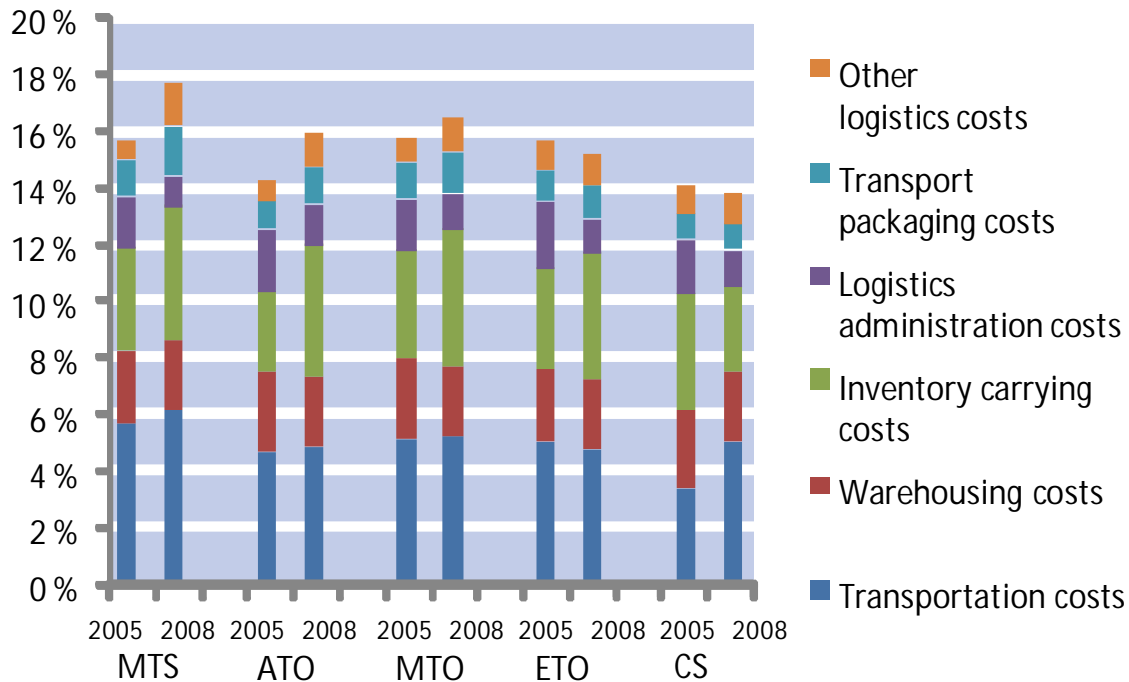


Figure 36 Impact of production mode on the logistics costs of manufacturing enterprises in 2005 and 2008 (N: MTS=93, ATO=71, MTO=287, ETO=241, CS=84)

In Fig. 37, there is an examination of the current level and development of logistics costs in certain pivotal industries as well as the metal industry, machinery and electronics industry in Finland from 2005 to 2008. Moreover, these industries can be seen as similar in kind to the extent that their mutual examination has meaning – contrary to, for example, the forest industry, whose transport intensiveness and rather low level of ‘value added’ are special features that clearly differentiate them from the industries mentioned above.

In this more exact examination, it was indicated that the costs of these industries relative to the absolute level, in like manner to their direction and vigor, were congruent to the extent that they could be presented together in a graphic manner.

As can be noted from the figure, the development of logistics costs in these industries as well tend to rather precisely observe the development of general costs, in which the outlays of the larger enterprises have risen considerably and are rather high at this moment; i.e. on the level of approximately 16% of turnover. On the part of essential cost components, it can be noted that the rise in transport costs represents one explanation for the increase in the share of logistics costs in these industries as well. Inventory carrying costs have risen amongst the enterprises in these industries even more strongly than transport outlays have. The warehouse level-linked increase in costs has been considerable in small and medium-sized enterprises.

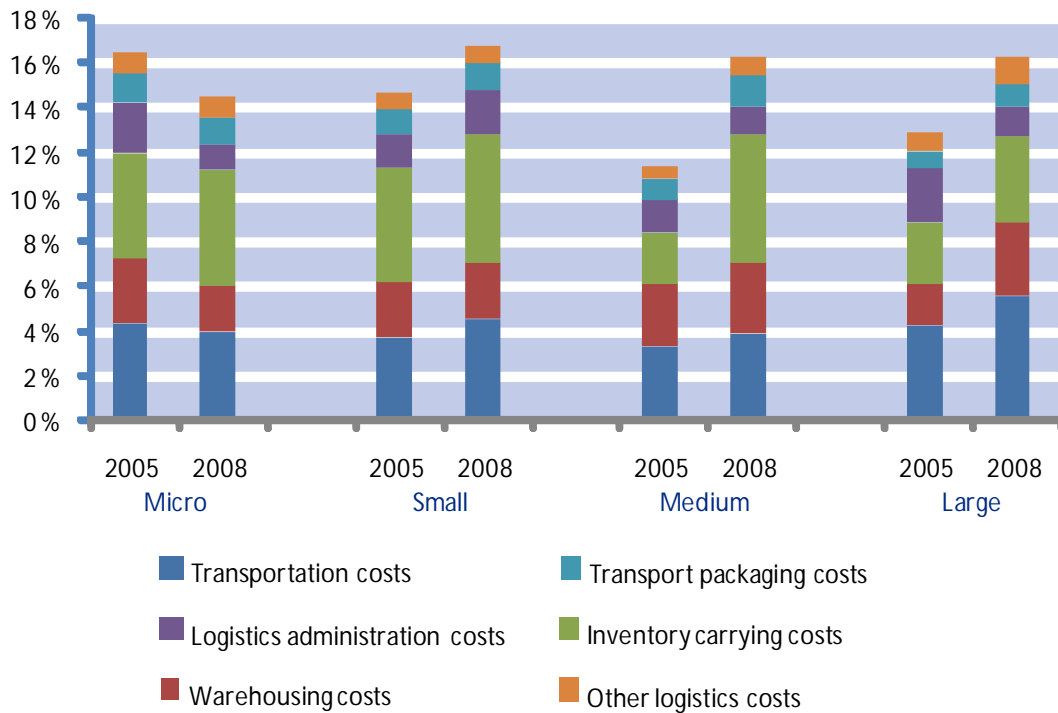


Figure 37 Logistics costs for enterprises in the metal, machine shop and electronics industries in 2008. (N: Metal industry=131, Machine shop industry=90, Electronics industry=39)

6.2.5 Manufacturing and trading companies perspectives on the development of logistics costs

Fig. 38 presents the perspectives of manufacturing firms concerning the development of logistics costs up to the year 2013. As seen in the figure, the strongest cost pressures are, in the viewpoint of the enterprises, directed towards quite the same transport costs noted during the previous report in 2006. An increase in these costs is regarded as probable by 50% of the manufacturing companies that responded to the survey. Slightly over one-third of the companies anticipate that the share of transport costs will remain the same, and only about 15% expect transport costs to decline in the future.

In examining the results, the time period when the survey data was gathered must be taken into consideration. The economic uncertainty that began from the financing markets has not yet fully managed to switch to the real economy, e.g. via crude oil to the price development affecting fuels: rather, responses to the survey were provided when prices were still at their peak.

With regard to other logistics cost items, the prospects for the future of manufacturing companies are slightly more optimistic. Approximately 30% of the respondents estimated that warehousing costs and warehouse-committed capital costs would grow during the next five years. It was estimated that the above-mentioned costs would remain the same by about one-third of the enterprises (with regard to warehousing costs, about half), and warehousing costs as well as warehouse-committed capital costs were also expected to decline in the future by three-quarters of the respondent companies.

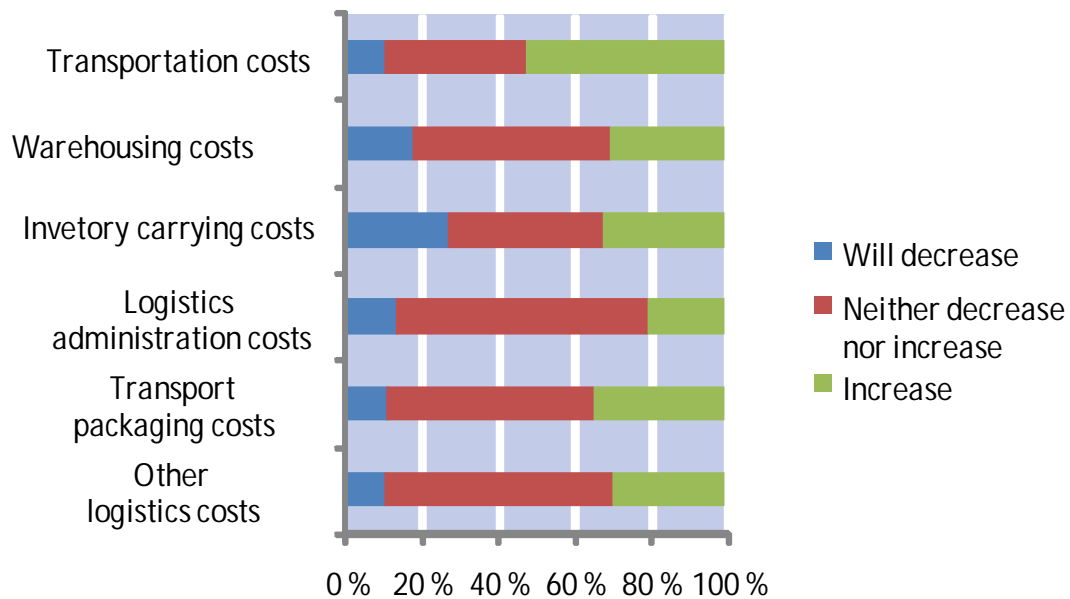


Figure 38 Perspective of manufacturing enterprises with regard to the development of logistics costs during the next five years (N=900)

In following the development of costs in the future, it would be reasonable to also examine them from the perspective of enterprise size. Fig. 39 presents the viewpoints of companies split into size classes with regard to the development of transport costs over the next five years. It is significant that, in particular, the medium- and large-sized enterprises estimated that transport costs would also increase in the future. This perspective can be explained by the fact that in examining freight costs at the moment, it is precisely the medium-sized and large enterprises that have experienced the most substantial rise in transport costs in the recent past, and they tend to estimate that the international trend in the transport markets will continue in the future as well.

With regard to transport costs, the question must nevertheless be asked concerning the extent to which the price of crude oil, which has strongly declined at the end of 2008 and outset of 2009, in addition to the considerable if momentary over-capacity of the transport markets in all transport modes and in the warehouse and terminal services, would affect the companies' estimates on the coming development of transport outlays virtually round the world.

In examining the estimates of the manufacturing companies with regard to another important cost factor, inventory carrying costs, the significance of company size can be said to be contrary to that of transport costs. Generally it can be stated that a rather small part (about 40% of the micro-enterprises and 20% of the large enterprises) estimated that inventory carrying costs would increase during the next five years.

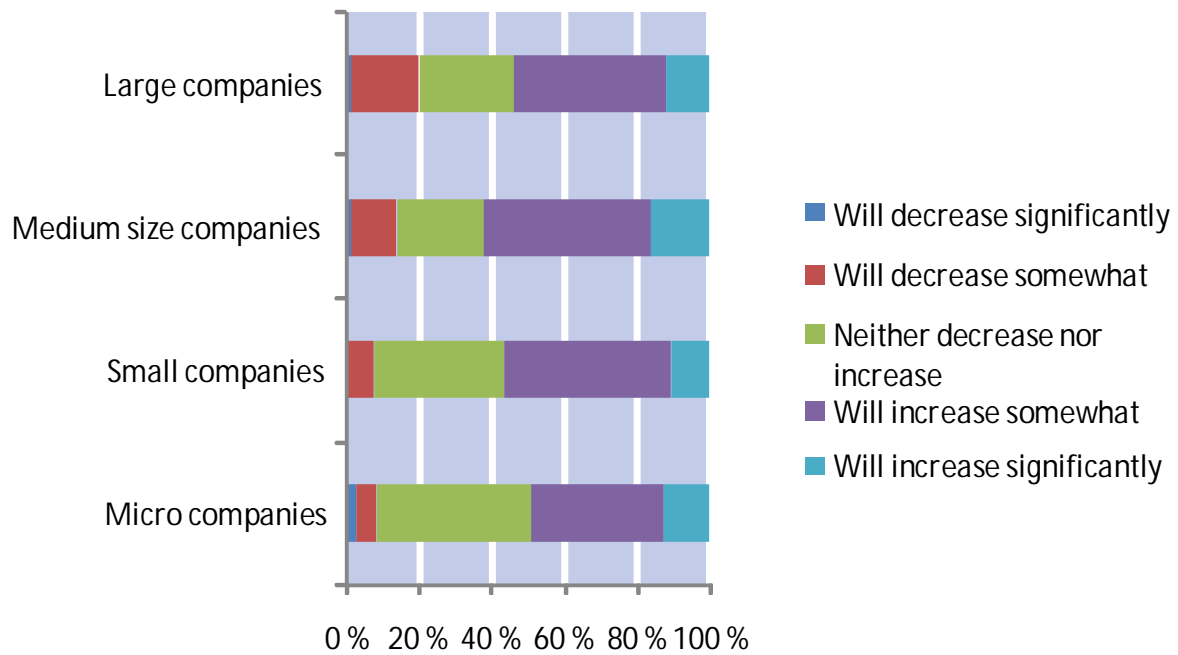


Figure 39 Perspective of manufacturing enterprises with regard to the development of transport costs during the next five years, examined with size of enterprise included (N=900)

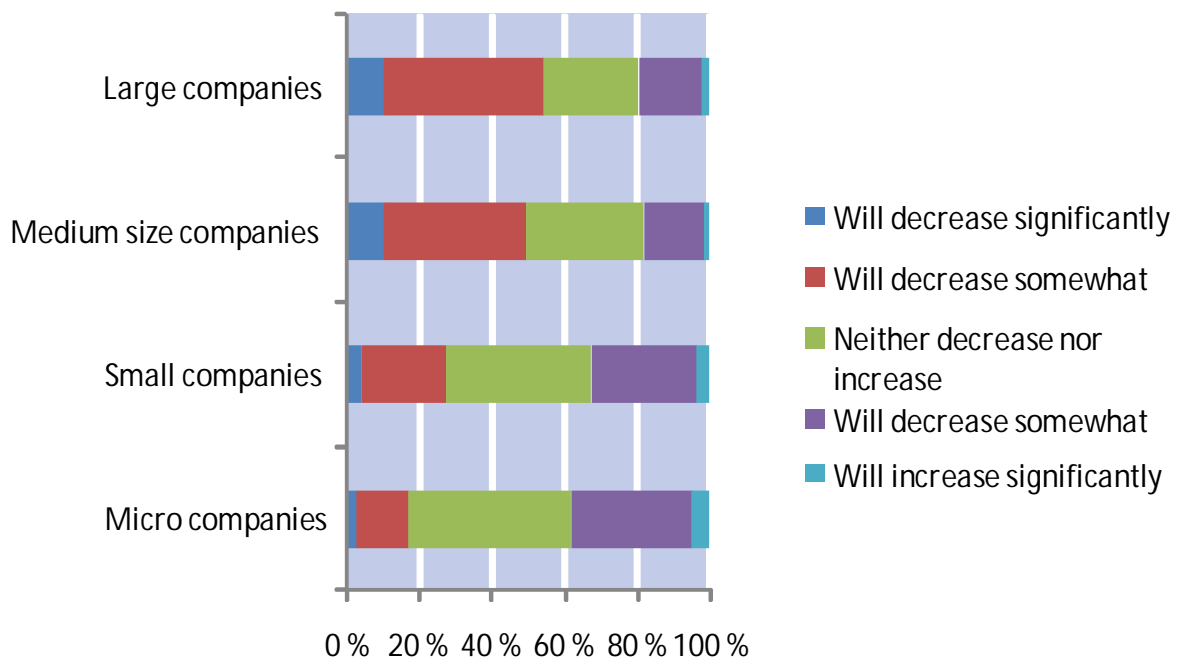


Figure 40 Perspective of manufacturing enterprises with regard to the development of warehouse-committed capital costs during the next five years, examined with size of enterprise included (N=900)

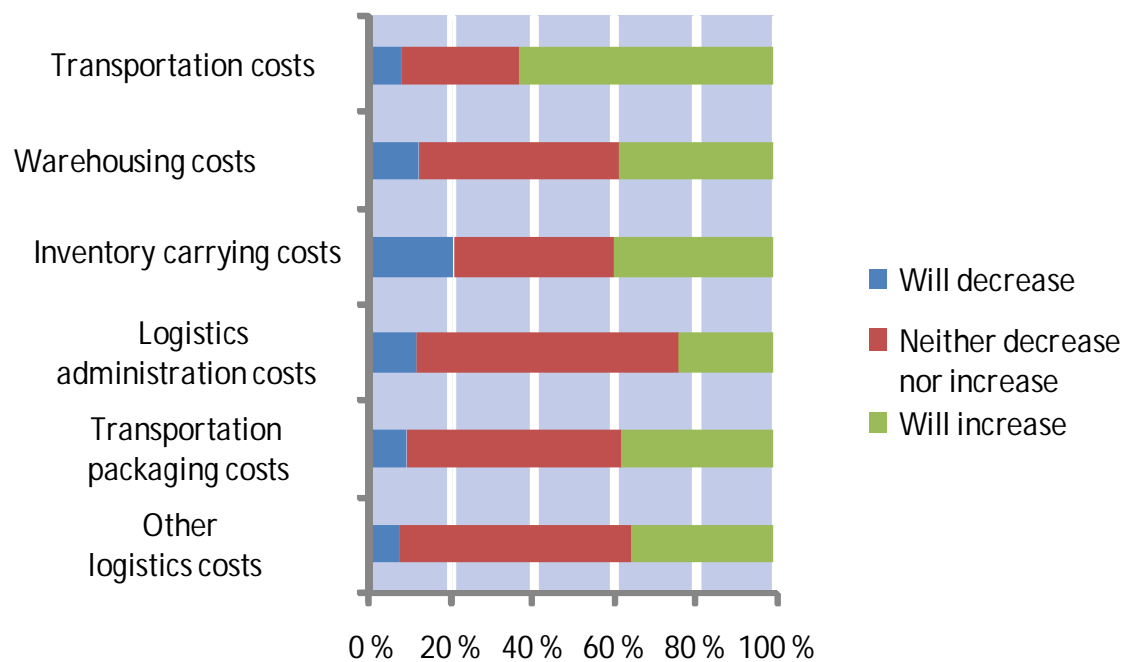


Figure 41 Perspective of trading enterprises with regard to the development of logistics costs during the next five years (N=754)

An essential observation is also the fact that almost 60% of the large enterprises estimated that inventory carrying costs would decline in the near future. In these assessments, the companies' adjustment to external pressure can be seen: there is an attempt to seek cost effectiveness in areas which tend to be under their own control – such as an increase in warehousing efficiency to help counteract fluctuating international markets and transport costs. The corresponding estimates of the trading companies, which are quite similar to those in industry, are presented in Fig. 41.

6.3 Key figures in logistics

6.3.1 Manufacturing

In Figs. 42 and 43, four pivotal key figures from each industry from which there was at least 10 observations are presented. In the figures, the column illustrates each industry's median, i.e. the level reached by half the respondents. The line segment drawn on top represents the highest and lowest fifth (quintile) range. The highest quintile limit means that 20% of the enterprises in the industry have received a better value for that value for the variable concerned. The lowest quintile limit means that 20% of the enterprises in the industry have received a poorer value for the variable concerned. The range of the line segment accommodates 60% of all respondent enterprises.

The share of perfect customer order fulfilment refers here to how high a percentage of all customer orders are delivered on time and to the right destination, correctly documented, in the correct quantity, and undamaged.

The differences between the industries as well as internally are, with respect to perfect customer order fulfilment, rather small. In all industries, the best fifth reached a minimum of 98% perfect orders, which has to be regarded as a very good standard. The median for the best industry, i.e. the production of foods, beverages and tobacco, was 98%. The delivery reliability in this industry is very good.

In the manufacture of electronics and electrical equipment, the median of perfect customer order fulfilment placed at 93% of all respondents, which is a high figure. Taking the quick rhythm of production, short anticipation period and weak visibility over the supply chain of the industry into account, however, it is clear that there is room for improvement. A matched pair based on this observation rose strongly from examination of the companies' most important development requirements – supply chain reliability and transparency, especially in the manufacture of electronics and electrical equipment. The task is not at all easy, however.

With regard to the weakest fifth, the differences between the industries are great. At their lowest, the limit of the weakest fifth was in the manufacture of motor vehicles, in which the share of perfect customer order fulfilment was 70% or less. In the manufacture of machines and equipment, the corresponding limit was 80%, and it was 85% in the manufacture of electronics and electrical equipment.

On the other hand, in the production of beverages and tobacco, the lowest limit of the weakest fifth was 95%. This means that virtually all of the businesses in the industry are capable of perfect order fulfilment.

In Fig. 42, the share of their received orders which contain errors in their documentation or invoicing are also presented. These shares are for the most part low. On the basis of this data, the lowest number of invoicing and documentation errors is encountered in the production of foods, beverages and tobacco, in which the median respective to errors is 1% and the dispersion quite small. This result is completely in line with the very high share of perfect order fulfillment in the industry.

In the manufacture of machines and equipment, the weakest fifth reported having received over 10% of their orders as erroneous. Such a large quantity of erroneous deliveries cannot but affect operations detrimentally. The share of perfect order fulfillment in the industry was also low.

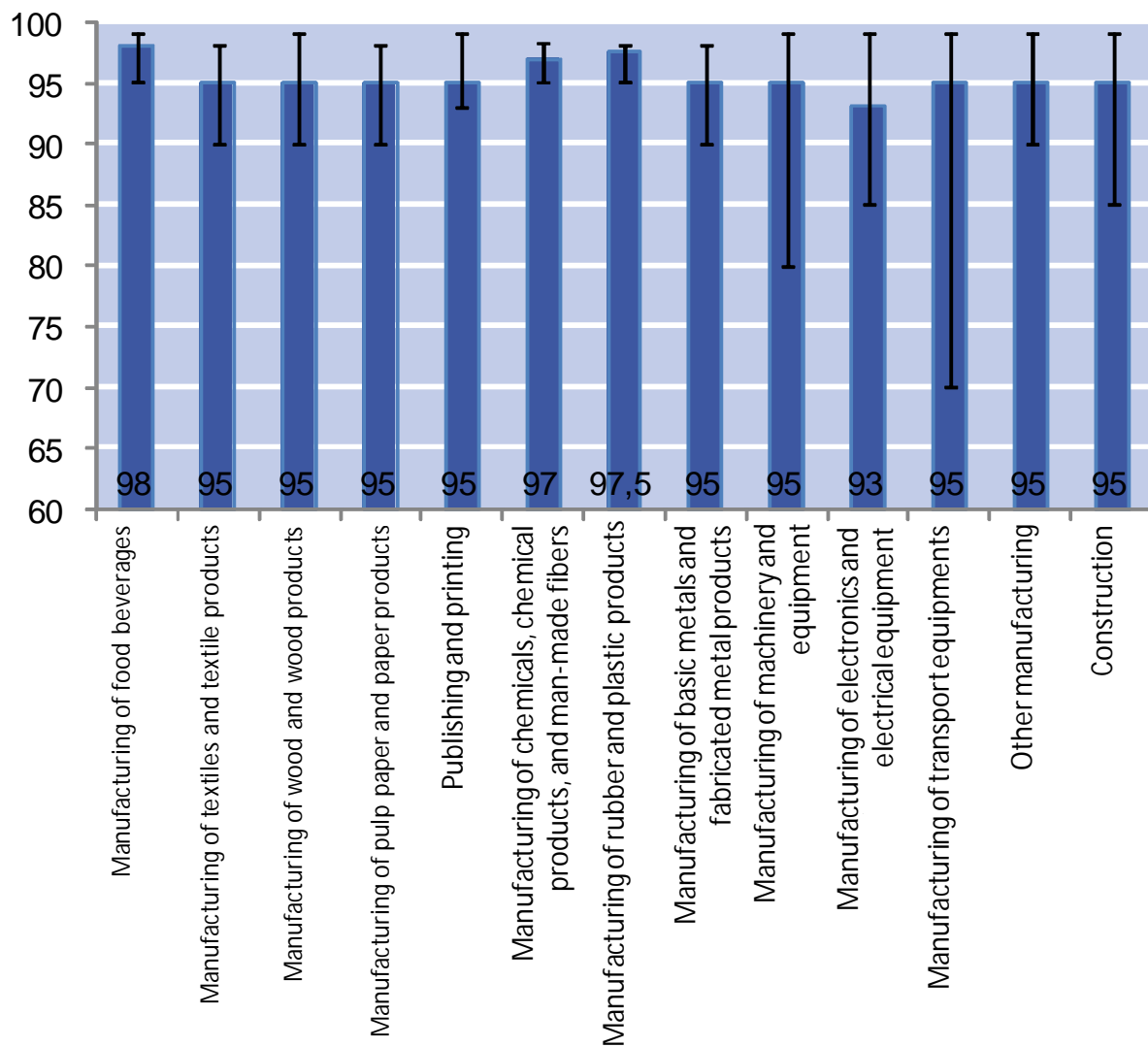


Figure 42 Shares of perfect order fulfillment to customers on different industries in Manufacturing. Median of field (column) and the weakest and best fifth range (line segment) as percentages of deliveries.

In Fig. 43, the average delivery time for customer orders and cash-to-cash cycle time are presented in days. There are considerable differences between fields, which are explained for the most part by the character of the operations. The fluctuations within fields are also substantial.

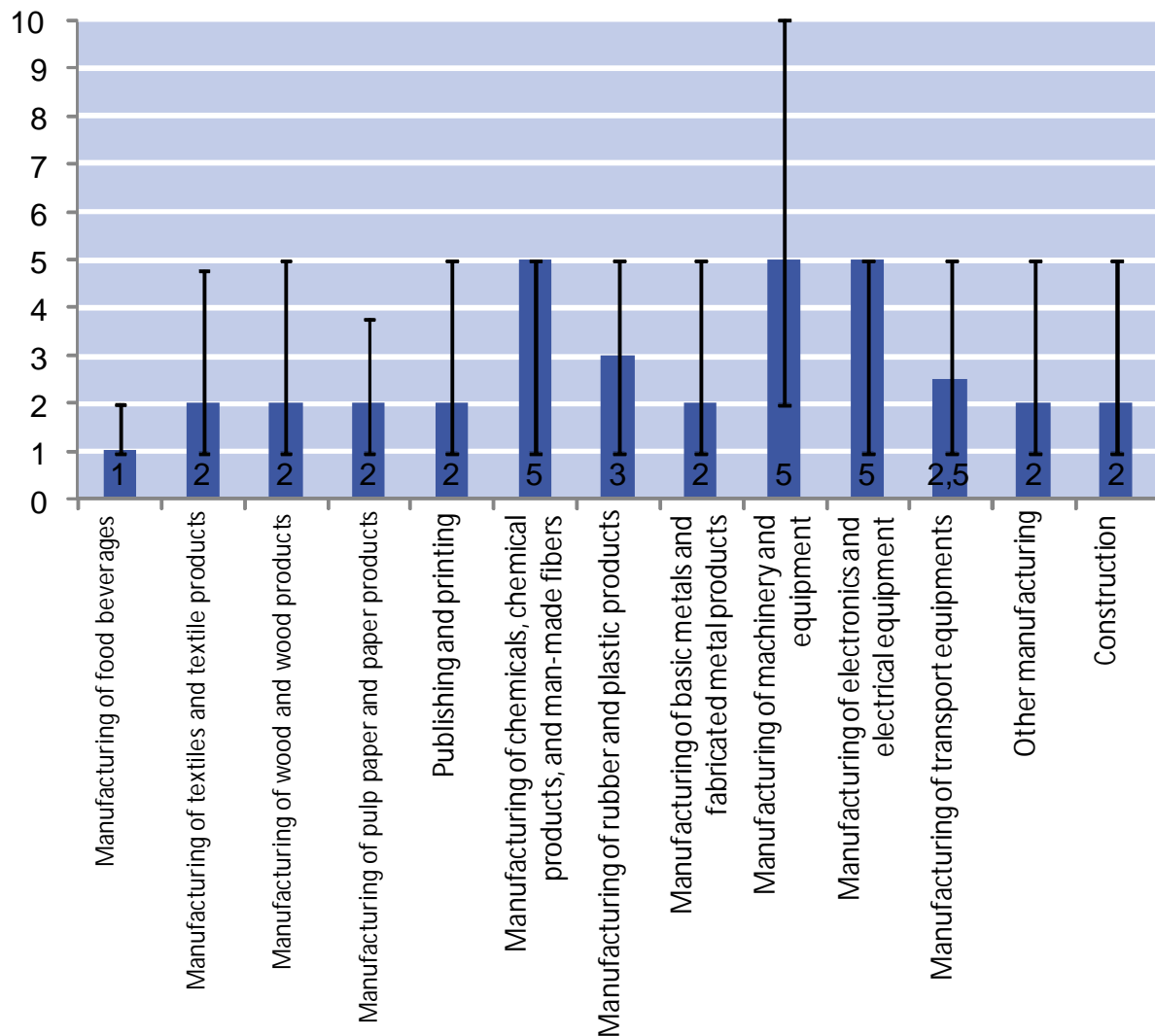


Figure 43 Share of orders received as erroneous with respect to documentation or invoicing on different industries in manufacturing. Median of industry (column) and the weakest and best fifth range (line segment) as percentages of deliveries.

The internal fluctuations are explained in part by the enterprises' differences in effectiveness and partly by the fact that the classification in this field as applied is still on such a high level that very different kinds of businesses are comprised within the same class. According to the results of Logistics Report 2006, the cash-to-cash cycle time for the best fifth was, in all industries, less than 20 days. Currently, only 10 industries of the 14 still come under the 20-day limit. A possible explanation for this is provided by the rapidly weakened demand at the end of 2008 and the increased warehouse stores, as well as the need for working capital. Only the cash-to-cash cycle time for the "publishing and printing" industry in the best fifth in 2008 was negative.

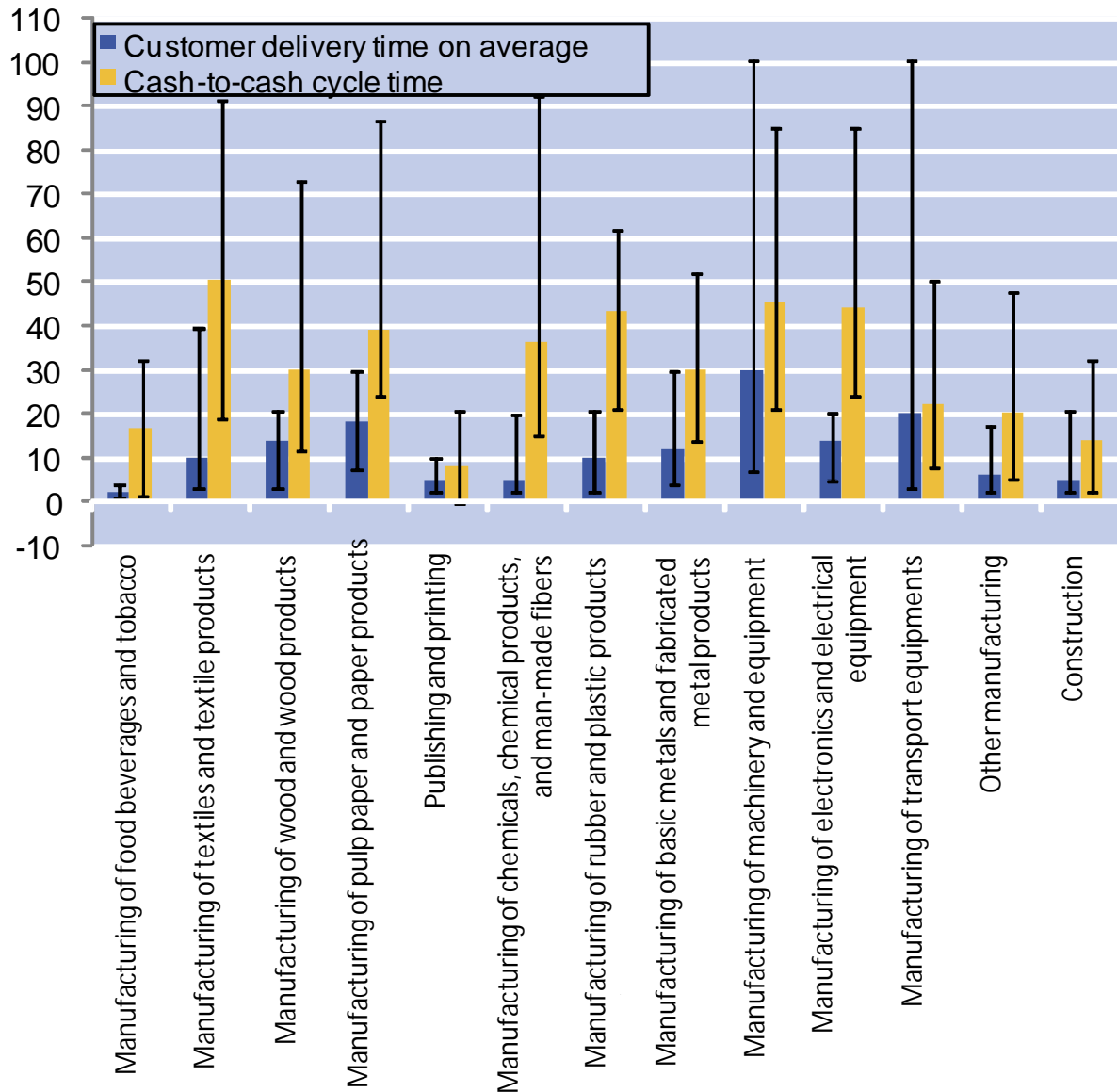


Figure 44 Customer order delivery time as well as cash-to-cash cycle time on different industries in manufacturing. Median of industry (column) and the weakest and best fifth range (line segment) as days.

6.3.2 Trade

The essential key figures for the trading industries are presented in Figs. 45, 46 and 47. Only 10 observations were available for "Fuel trade", so it is not included in the analysis.

The share of perfect customer deliveries from all deliveries presented in Fig. 45 relates how high the percentage is of all customer orders delivered on time and to the right destination, correctly documented, in the correct quantity, and undamaged. As a whole, the key figures for trading are better and the differences are smaller than in manufacturing.

The differences between industries and their internal differences are rather small in examining the best fifth (always at least 99%) or the median (95-98%). With regard to the weakest fifth, the differences are greater. The best key figures are in the wholesale trade respective to foods, beverages and tobacco, in which the limit of the weakest fifth is 95%. The limit for the weakest fifth respective to the retail trade in foods, beverages and tobacco is 85%. This means that there is substantial room for improvement on the retail trade side in particular with respect to the management of deliveries to customers. On the other hand, the potential for errors increases the more precise the deliveries and the smaller the batch sizes become.

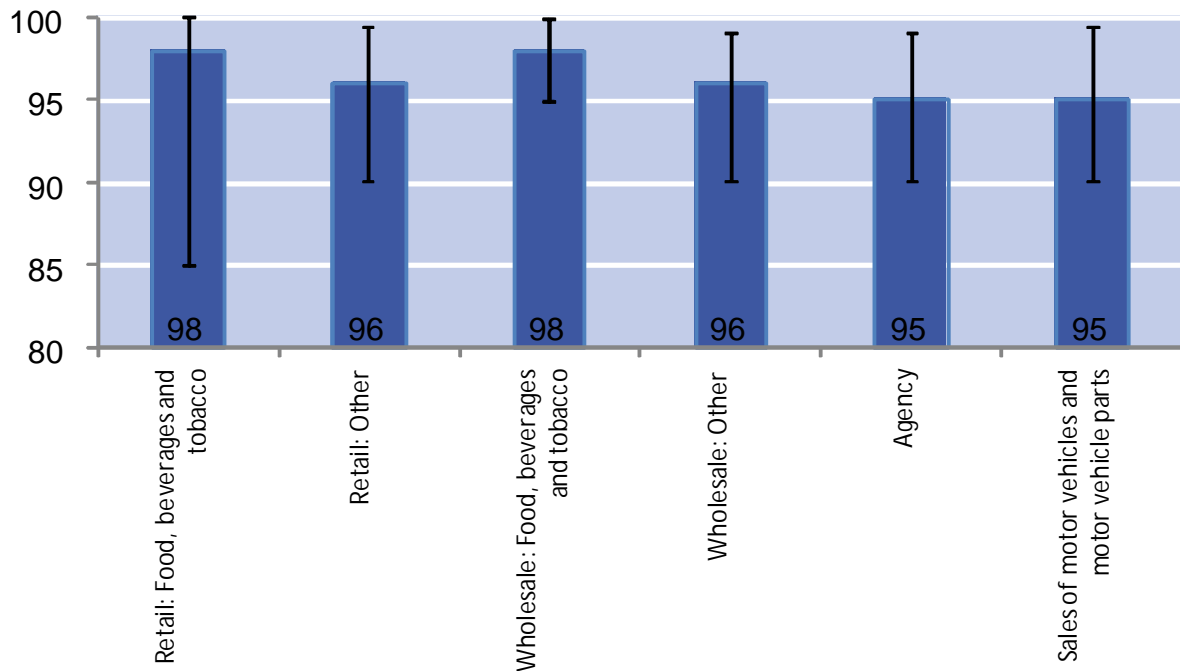


Figure 45 Shares of perfect order fulfillment to customers in different industries in trading. Median of industry (column) and the weakest and best fifth range (line segment) as percentages of deliveries.

On the basis of Fig. 46, the median of received orders containing errors in the documentation or invoicing is 2–3% in the trading. With regard to the best fifth, the range is small – only approximately 0.5–2%. With respect to the weakest fifth, the differences between trading industries reach even 5–10%. The large differences within the industry particularly affect the economic performance of firms within the weakest fifth.

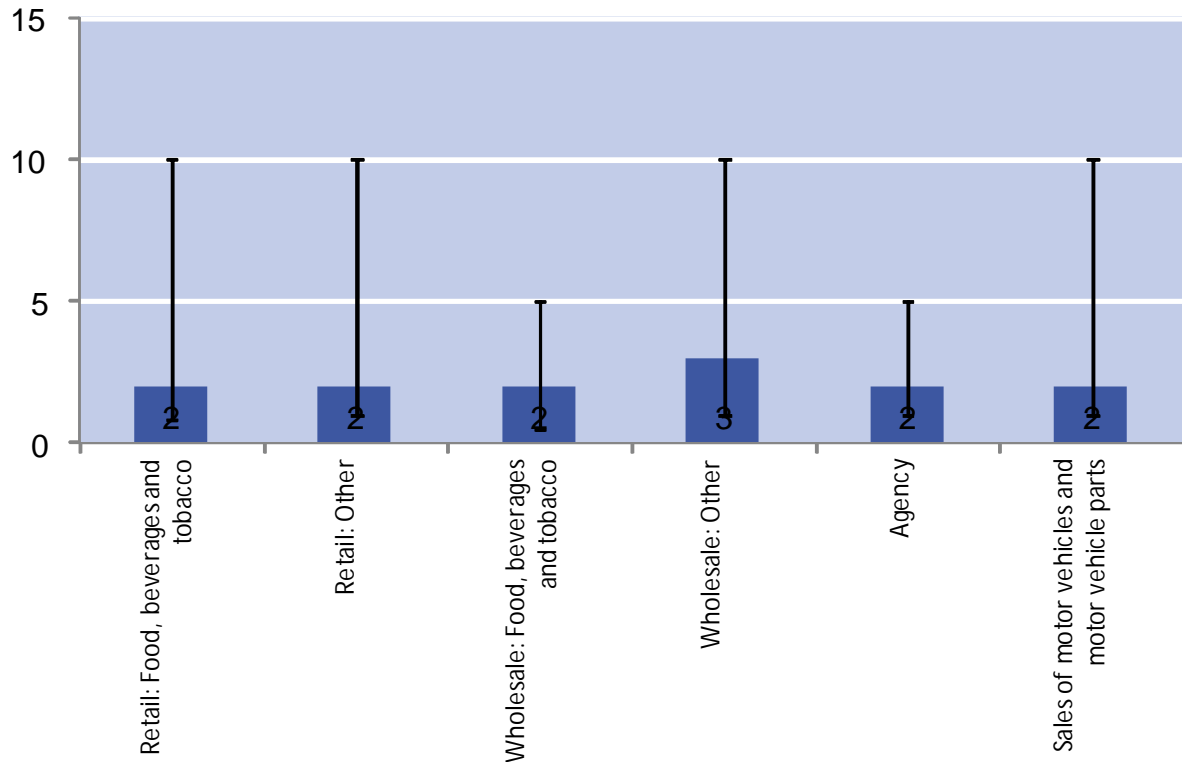


Figure 46 Shares of orders received as erroneous with respect to documentation or invoicing in trading. Median of industry (column) and the weakest and best fifth range (line segment) as percentages of deliveries.

In Fig. 47, the average delivery time for customer orders and cash-to-cash cycle time are presented in days. The internal differences within the industries with regard to cash-to-cash cycle time are very large compared to the best fifth or the fifth of the enterprises worse than the median. The cash-to-cash cycle time in the case of the majority of the enterprises by reference to international practice is very short. In four industries out of six in the best fifth, cash-to-cash cycle time is even negative.

Customer orders-based delivery time is very short with regard to both medians and the best fifth in all trading industries. The difference from the industry sector's corresponding figures is considerable. The internal fluctuation within the trading is nevertheless rather large.

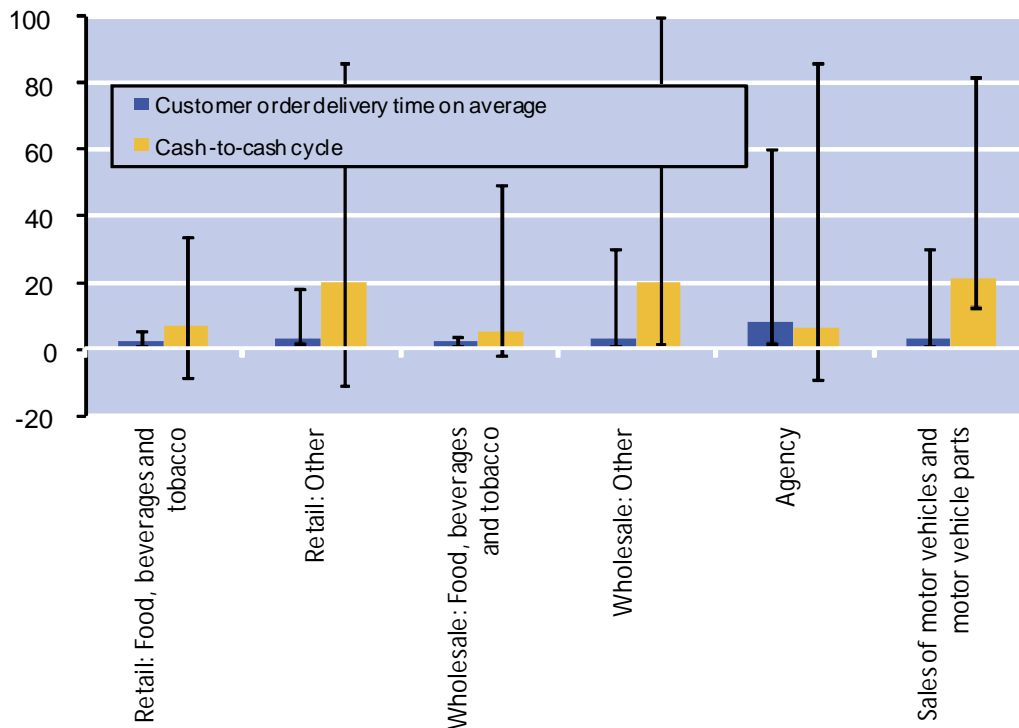


Figure 47 Customer order delivery time as well as cash-to-cash cycle time in days in trading

Each of the key figure distributions are skewed: i.e. for the majority of the enterprises, the delivery and cash-to-cash cycle times are short, but for some firms they are very long. In the event that these types of companies' business models and field of competition are the same, these differences cannot remain invisible in result-making ability either. The distributions corresponding to the manufacturing industries are, on the average, more symmetrical. Internationally, the key figures for Finnish industry are favourable and, with respect to commerce, even excellent (cf. GMA Logistics Survey 2008 and Supply Chain and Logistics Canada, 2006).

6.3.3 Monitoring logistics-related key figures in industry and commerce

In Fig. 48, the distributions of the responses are presented with regard to the monitoring of key figures and their utilization in manufacturing and trading. There are no significant differences in following up the key figures and their utilization with exception of the comparison of logistic performance with competitors. Only 32% of the manufacturing respondents are "partly" or "completely the same opinion", whereas the corresponding share in trading is 54%. This may be partly reflected in the importance of logistics as a competitive means. As such, the monitoring of logistic performance is regarded as widely benefiting a company. Environmental impacts from logistics functions are monitored by approximately one-third of the businesses: the proportional share of "partly the same opinion" or "the same opinion" is only 37% in industry and 33% in commerce.

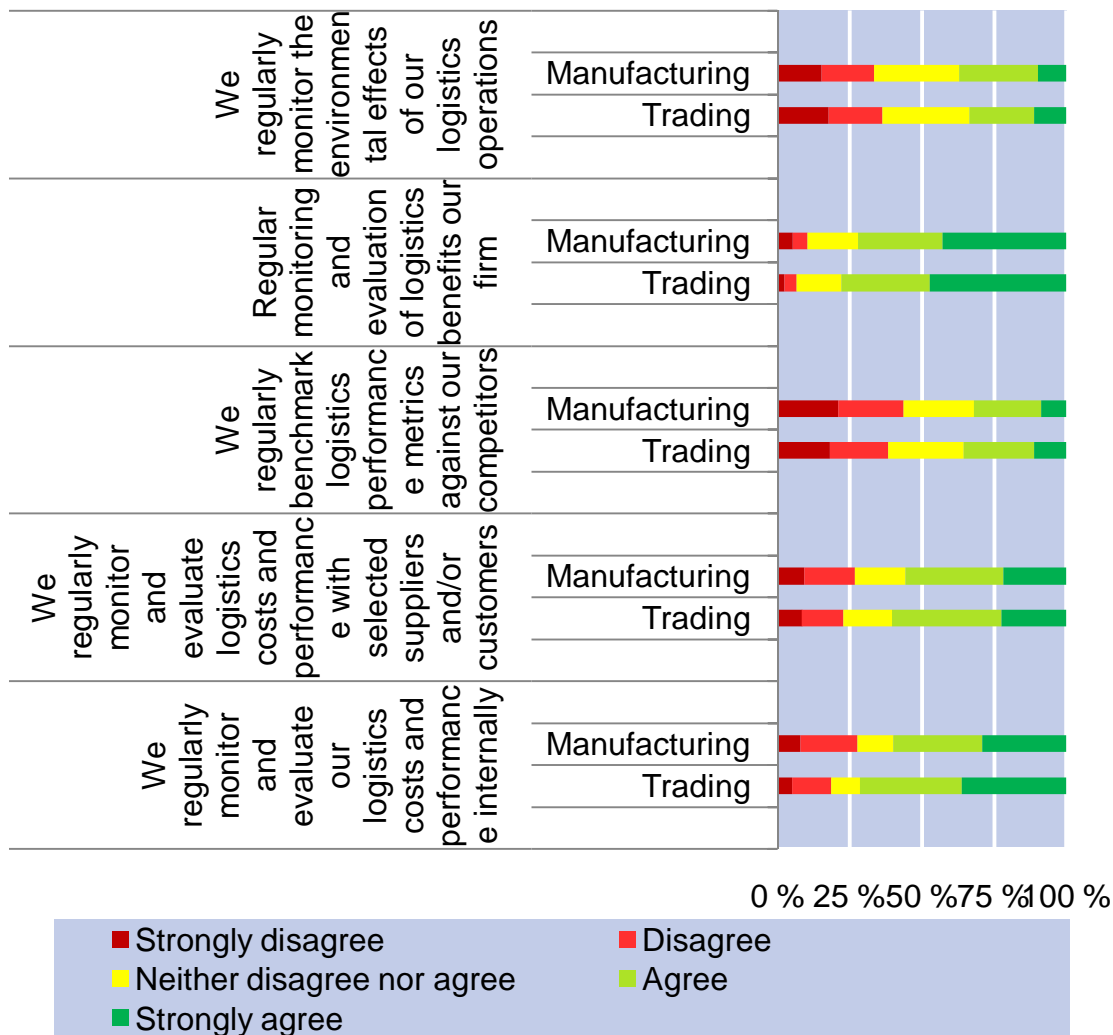


Figure 48 Monitoring and utilizing of key figures in manufacturing and trading companies

Fig. 49 presents the distributions for the monitoring and utilization of key figures according to size of enterprise.⁴ Only those classes are included in which there is an individual minimum of 20 responses. The findings correspond in the main to expectations. The degree of internationalization and size explain the use, monitoring and usefulness of the key figures.

Operational key figures are precisely monitored within the enterprise and partly with business partners as well. Comparing key figures with those of competitors is comparatively rare, which tends to be explained by the difficult accessibility of the reference data. On the other hand, there would understandably be a great need for this sort of "benchmarking" information. Finland State of Logistics 2009 already generates this kind of information in the final report at hand. Moreover, the business enterprises responding to the survey that have provided their email address details in their responses will receive a confidential summary report during the spring of 2009, in which the company's responses are proportioned in all cases into comprehensive and anonymous survey data.

⁴ In Annex 12, the classification according to degree of internationality is also presented with regard to industry. Only those classes in which there are 20 responses are presented in the results.

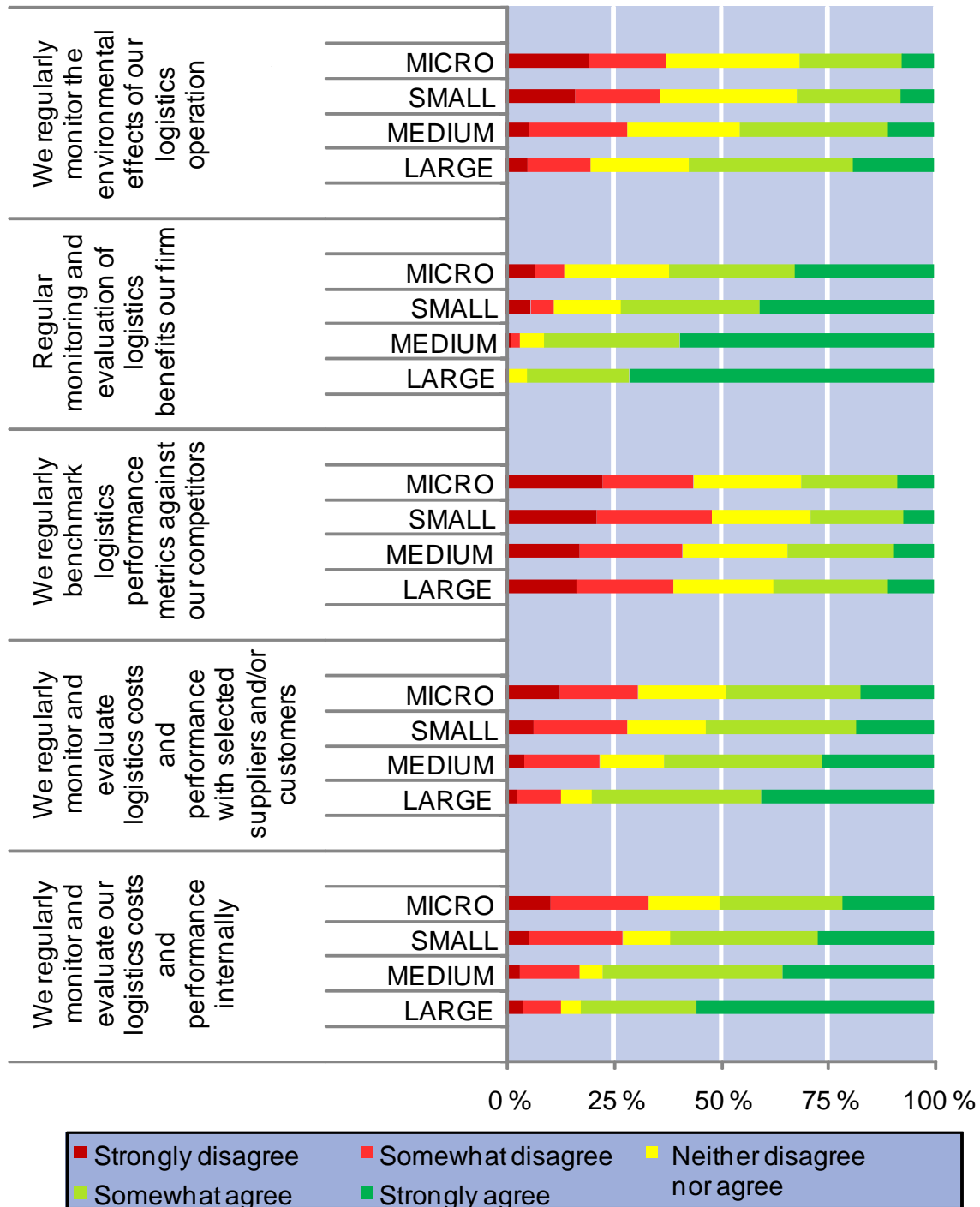


Figure 49 Monitoring and utilization of manufacturing enterprises' key figures according to enterprise size.

The environmental impacts of logistics operations are monitored in the manufacturing enterprises almost as rarely as the corresponding key figures of competitors. With regard to environmental impacts, the proportion of "partly the same opinion" or "the same opinion" exceeds 50% only in the large domestic market and internationalizing companies together with the

medium-sized domestic market enterprises. There would be room for improvement in following up environmental impacts. In this respect, the company can improve matters itself much more easily than, for example, obtaining competitor information.

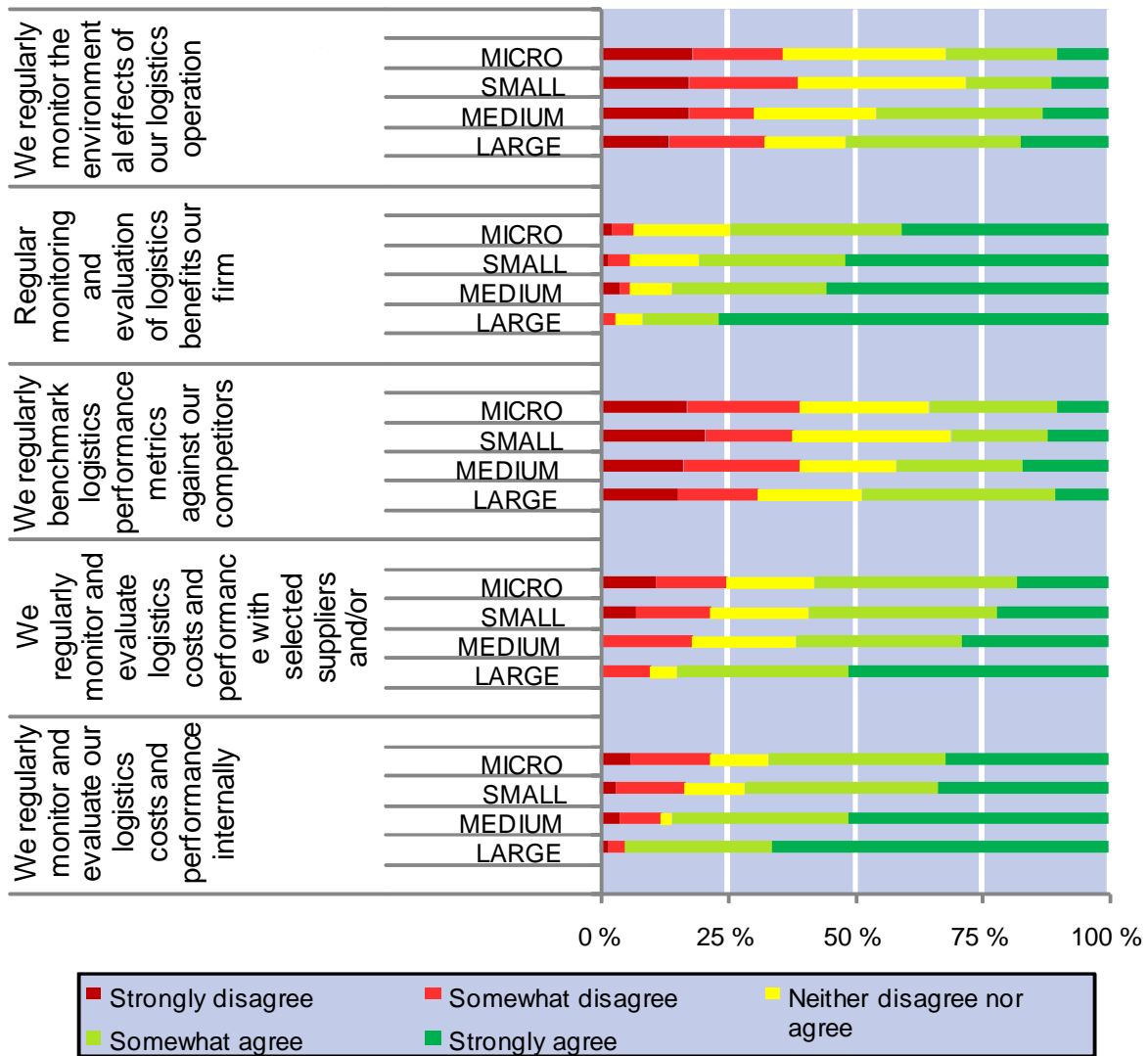


Figure 50 Monitoring and utilization of trading enterprises' key figures according to size of enterprise.

Fig. 50 presents the monitoring and utilization of the enterprises' key figures according to company size. Enterprise size is the most significant exponent of the utilization and utility of key figures, which is the anticipated finding.

In trading, comparison of key figures with those of competitors is considerably more common than in industry. Although the variety of trading firms that have responded to this survey is broad, this factor tends to be explained by the availability of better information from the trading generally. The more satisfactory acquisition of information than in industry has been enabled by the more integrated structure of the trading industry and operations that are, for the

most part, inside the country; the well-developed collection of information by industry-related organizations; and the comprehensive analysis operations performed by certain trading operators. The collection of information has gone to the point that the matter also interests the free competition authorities. For this reason, e.g. certain perishables business chains signed off from the information exchange in 2008.

The environmental impacts of logistic functions are also relatively rarely monitored in companies in trading. With regard to environmental impacts, the proportion of "partly the same opinion" or "the same opinion" exceeds 50% only in the case of the large enterprises. There would definitely be room for improvement in the follow-up of environmental impacts in the trading as well.

6.4 Use of information systems in manufacturing and trading companies

In this report, the prevalence of corporate use of various technologies was examined on the basis of the previous report by means of a more concise battery of questions. Instead of examining various interest groups, this time only the matter of whether or not some technology is applied somewhere in the enterprise was determined. The responses of manufacturing and trading are presented in Fig. 51.

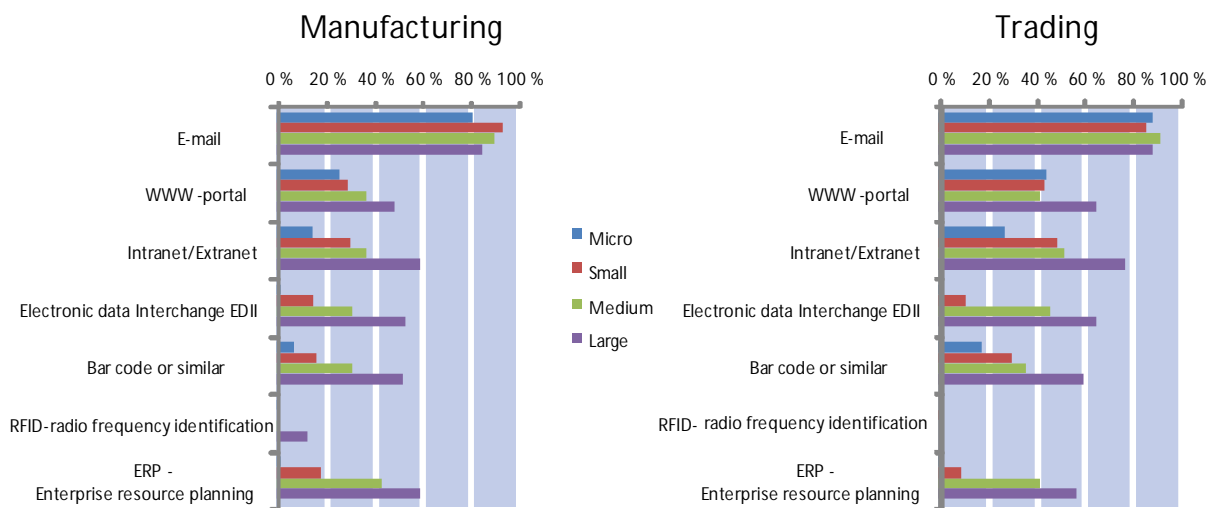


Figure 51 Use of information systems in the management of orders and deliveries in the manufacturing and trading enterprises

The use of electronic systems is considerably more prevalent and versatile in the large enterprises. For example, intranet/extranet systems are used by almost 60–80% of the large companies, while the corresponding figures in the small-sized and micro-enterprises are in the 20–40% class. The use of email is relatively common, and approximately 80% of the micro-enterprises as well utilize email regularly.

The results of the survey this time are quite similar in character to those of the previous report. In the group of large enterprises, the EDI system was applied by approximately 60% of the large companies in 2005, 45–50 %), and the ERP system is applied by slightly below 60% of the respondent firms (in 2005, 55–65%), so the use of these systems has either become slightly more common or has remained on the same level.

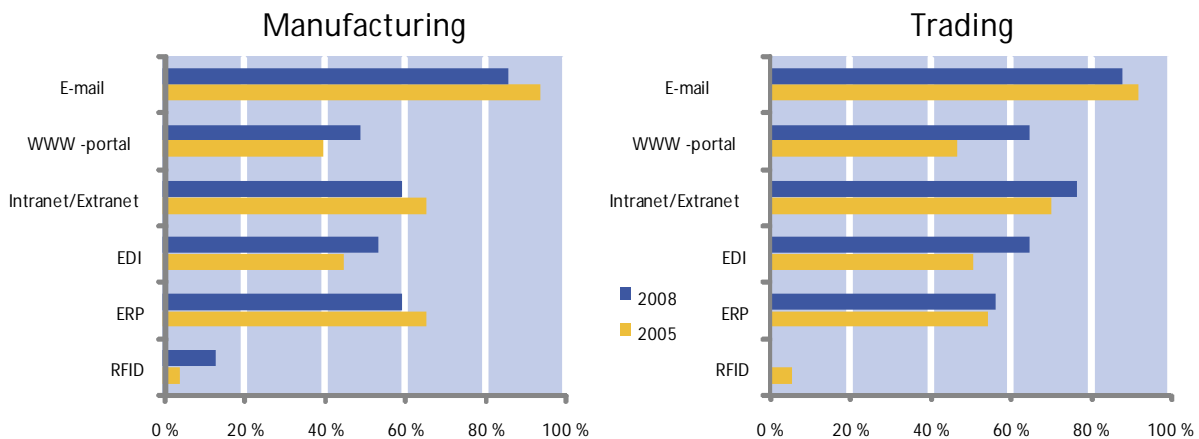


Figure 52 Use of information systems in the management of orders and deliveries in large enterprises in 2005 and 2008

The use of RFID systems has remained entirely on the modest level of 2005. With respect to the large manufacturing companies, the use of RFID has nevertheless increased from approximately 4 % to approximately 13% in 2008. One of the findings of the previous report was that the business enterprises expected the application of RFID systems to spread even vigorously in the near future, but in three years hardly any such progress has occurred.

6.5 Logistics competence and development requirements

Finland State of Logistics 2009 charts the development requirements of manufacturing and trading as well as those of logistics services-related enterprises through the development needs of company and staff. Results are also compared in the sections applicable with the previous report.

Staff expertise and the organization's capabilities enable, on their part, the effective application of the company's resources, added value, customer service and, in the final analysis, a competitive edge on the markets (Prahalad & Hamel 1990).

Among other things, an efficient distribution system, the application of the delay principle in manufacturing and distribution, the management of supplier relationships and a high standard of customer service in addition to the precise and rapid implementation of orders are all examples of logistic capabilities (Olavarrieta & Ellinger 1997). Acquisition and purchasing functions-related capabilities also have an effect on production expenses, quality, deliveries to customers and the launching of new products (Das & Narasimhan 2006). The recognition and management of development requirements establish the foundation for the organization's logistic capability.

In the worldwide survey concerning the management of the supply chain by large companies, conducted in 2008 by the McKinsey business administration consulting firm (N = 273), the most important targets for development were 1) the reduction of costs (approximately 58%), 2) improvement of the customer service (approx. 43%), 3) faster launching of new products (approx. 33%) and 4) increase in delivery reliability (approx. 18%). In the survey, each re-

spondent received the task to choose the two most important development targets whose total calculated percentage share figures are intended in brackets (McKinsey 2008). The results are quite similar to those in Finland State of Logistics 2009.

6.5.1 *Manufacturing*

6.5.1.1 Company level development requirements

Manufacturing companies (including construction) were requested to assess important logistics-based development areas over the next five years. (Fig. 53) The most essential development requirements are connected with the improvement of customer service and the reduction of logistics costs. After these, the improvement of delivery reliability and development of information systems came to the fore in the responses.

Slightly below 5% of the respondents have mentioned reducing the ecological footprint of the company or management of the security risks in the supply chain as the most important development requirement (the alternatives are included for the first time). These companies are mainly micro-enterprises in construction, sawn wood production and metal processing. The low share is affected by the dominant proportion of main alternatives in a quickly changing economic situation, but the circumstances also tend to illustrate the fact that there has not been enough attention given to reducing environmental impacts and supply chain risks.

The management of supply chain-related risks was emphasized quite strongly in, for instance, McKinsey's report on the management of the supply chain, in which the results of large enterprises were compared in 2006 and 2008 and in which respondents were requested to assess how the supply chain risks ("supply chain risk faced by your company") had changed during the previous five years. While they had, in each instance, declined in the case of only 5–7% of the respondents, in the 2006 results they had increased to some extent or substantially by 65%, and in 2008 already by over 75%. (McKinsey 2008)

Comparison with the 2005 data indicates that the principal attention is being focused on the basic issues of logistics. The relative share of logistics expertise- or supply chain-related transparency as development requirements has declined. The same has occurred with regard to the development of mobile solutions and the distribution network. On the other hand, the significance of delivery reliability as a new question is particularly large.

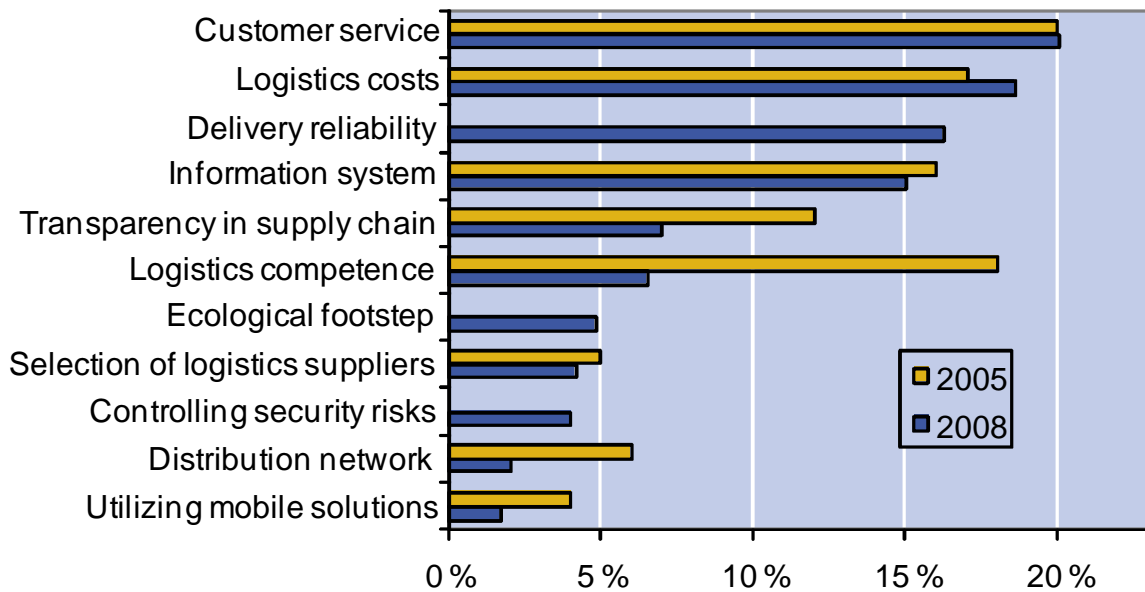


Figure 53 The most important development requirement in manufacturing and construction, percentage of respondents, 2008: n=893, 2005: n=906. Each respondent could select the most important development requirement for his/her enterprise for the next five years (5)⁵.

The size of the enterprise intrinsically affects the system of priorities for development targets (Fig. 54). For micro-enterprises, the development of customer service is clearly the most important focus, while for large firms the most important target is the reduction of costs followed by delivery reliability and the transparency of the supply chain. The development requirements for medium- and small-sized firms for the most part observe those corresponding to large enterprises. For large companies, the most significant “deviation”, however, is the transparency of the supply chain, which is considerably more important than for the others.

Large manufacturing companies have presumably acknowledged those significant benefits which, according to the research, are realized from cooperation with other actors, e.g. in the food supply chain (Taylor & Fearn 2006).

⁵ As compared to Logistics Report 2006, the respondents now had more alternatives to choose from as the most important development requirement. The three new alternatives were: improvement in delivery reliability, improvement in the enterprise’s ecological footprint, and management of security risks.

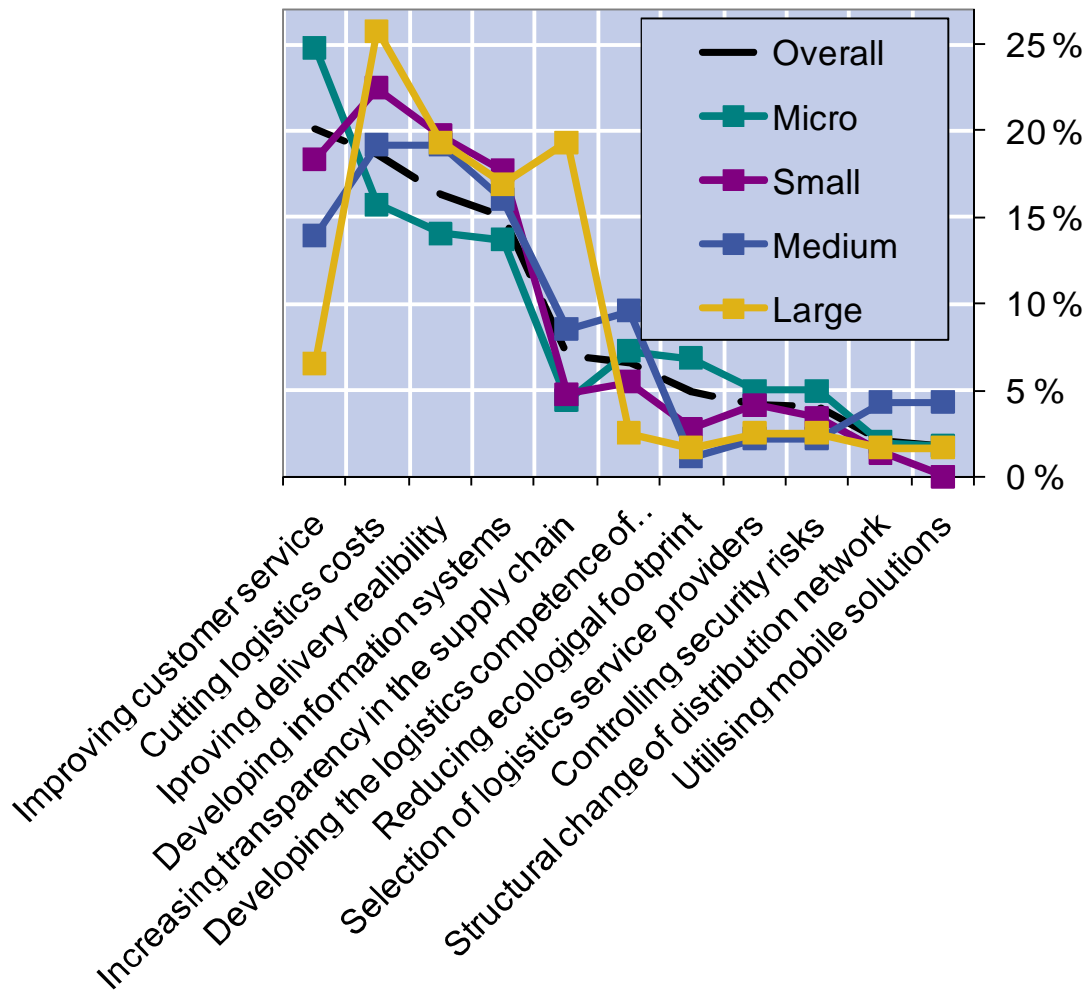


Figure 54 The most important development requirement in industry and construction according to size of enterprise, percentage of respondents, Large enterprises n=124, Medium-sized enterprises n=94, Small enterprises n=147, Micro-enterprises n=528, All n=893.

The degree of manufacturing companies' internationalisation also appears to affect logistics-based development requirements. For domestic enterprises, the most important target is the improvement of customer service, and for export companies it is the development of information systems. For international companies, the most important factor is the reduction of logistics costs. Improvement in delivery reliability, the development of information systems and improvement in the transparency of the supply chain are clear development priorities for international companies.

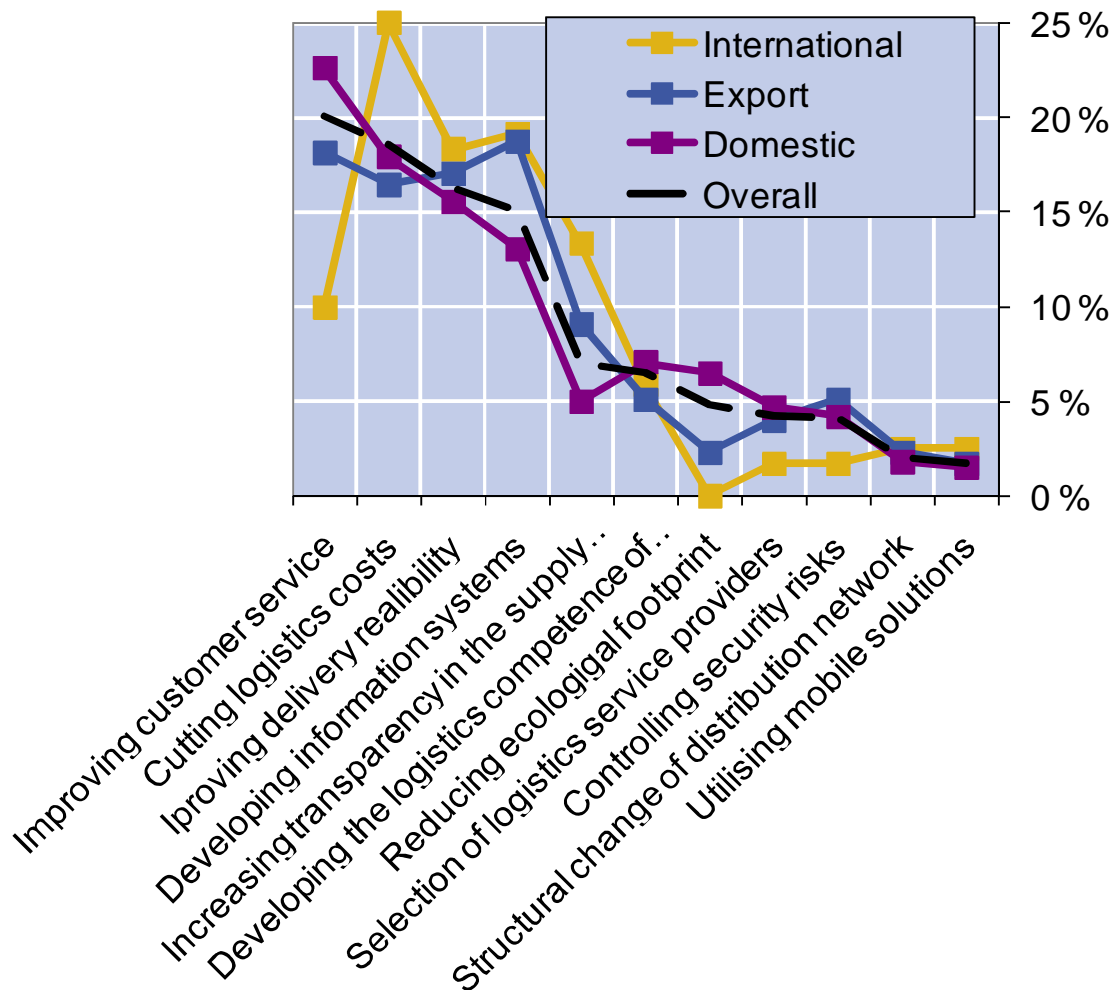


Figure 55 The most important development requirement in industry and construction according to internationality, percentage of respondents, International enterprises n=120, Export enterprises n=176, Domestic enterprises n=597, All n=893.

The most important development targets for companies engaged in international trade and production are not surprising. For these enterprises, direct and indirect logistics costs may be a significant part of the product's overall costs, whose rise affects the basic assumptions behind the route- and location-related decisions.

In international supply chains, there are also more uncertainty and risks than in purely domestic supply chains (e.g. Prater, Biehl & Smith 2001). The reasons are, among other things, the long distances, differences in operational methods, lead times and border crossings. These also affect delivery reliability and the transparency of the supply chain. With respect to these, operations are controlled more and more frequently with integrated information systems (customs, tracking of deliveries, etc.).

Between domestic companies and firms operating internationally, there is a clear difference also in adjusting to the reduction of the ecological footprint. For domestic market enterprises, this is much more frequently the most important criterion.

6.5.1.2 Personnel-related development requirements

Manufacturing firms were requested to assess some of the most important areas which the company would most benefit from raising with regard to logistics expertise on the part of personnel. Fig. 56 compares the situation in 2008 with the responses in the previous logistics report.

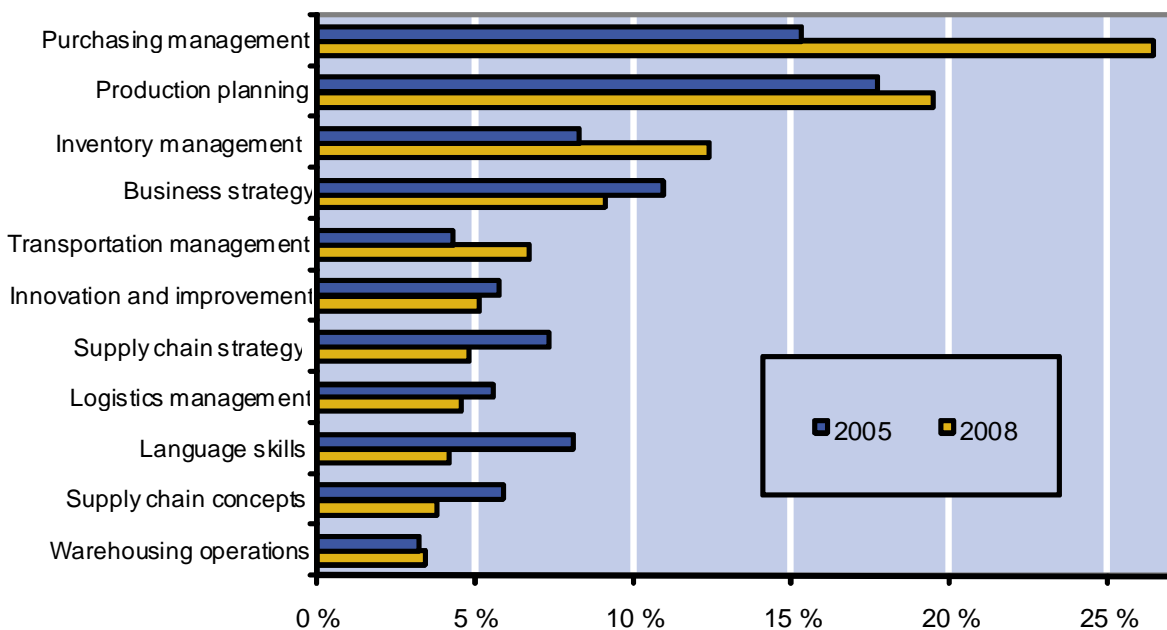


Figure 56 The most important development requirement of personnel in manufacturing and construction, percentage of respondents, 2008: n=878, 2005: n=861. Each respondent could select the personnel's most important development area whose level the enterprise would most benefit from raising.

The most important area of personnel development has changed from production planning to procurement and purchasing functions. In addition, warehouse management is now more important than business strategy by reference to the findings of the previous report. The significance of transport management also appears to have grown.

Competence on the operative level is currently regarded as more important than previously; moreover, the results are reflected by the management skills in basic logistics and the supply chain. The role of procurement and purchasing functions as a reductive element in costs and, as a determinant of warehouse levels, would appear to have more emphasis in the present situation which has, in addition, been preceded by the high price level of raw materials and freight. With demand rapidly deteriorating, the importance of inventory management would thus appear to have gained in emphasis. Under the difficult financial circumstances, the enter-

prises appear to have concentrated on the better management of operations and basic issues rather than strategic level issues.

In Fig. 57, development needs with regard to the logistics expertise of the staff were examined according to enterprise size. The expertise profiles are rather similar, but there are also conspicuous differences. In the small enterprises, the significance of warehouse management is emphasized.

The most essential logistics expertise development areas for large companies are supply chain strategy and the design of procurement- and purchasing-based functions. Production planning and warehouse management come after these, but their relative importance is more minimal than in the smallest enterprises.

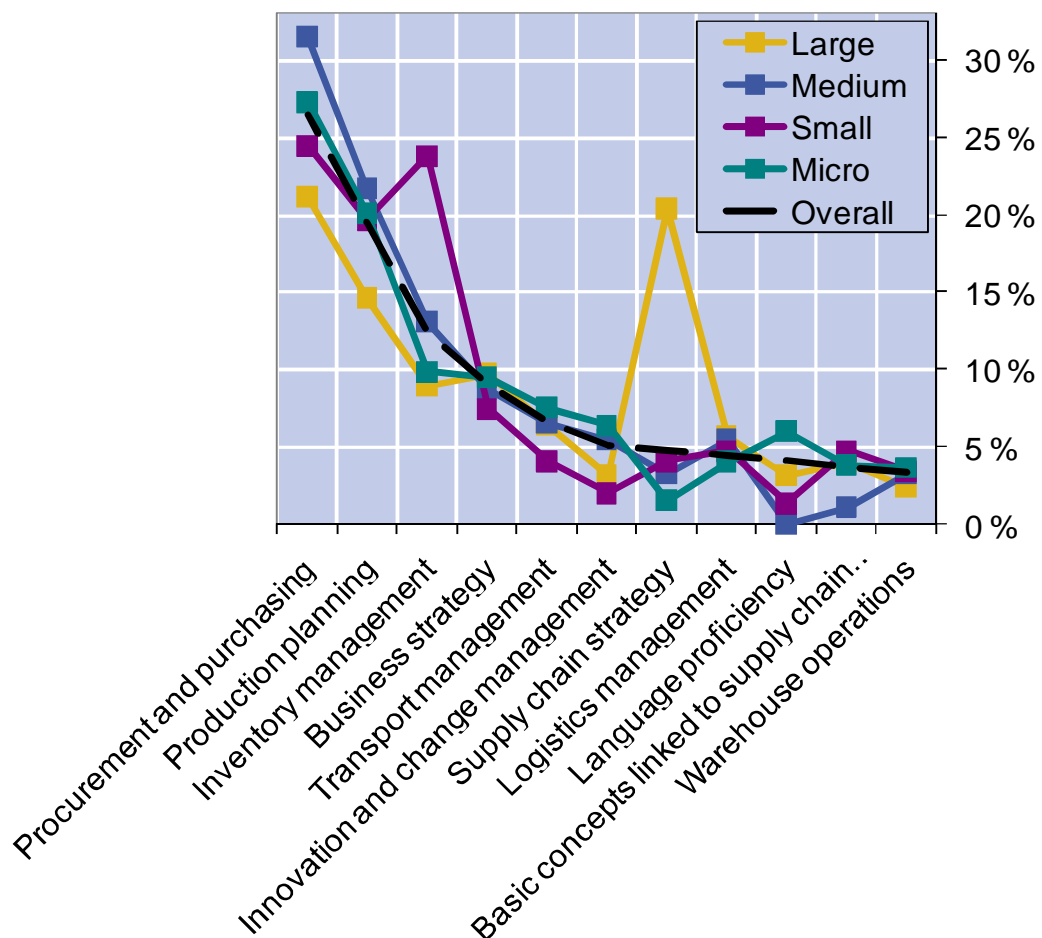


Figure 57 The most important development requirement of personnel in manufacturing and construction according to size of enterprise, percentage of respondents, Large enterprises n=123, Medium-sized enterprises n=92, Small enterprises n=147, Micro-enterprises n=516, All n=878.

Examined on the basis of internationalisation, the logistics expertise of the companies' staff appear to be rather similar, though there are certainly differences (Fig. 58). In the international

companies, the requirement for development in procurement and purchasing functions is clearly greater than in the export companies. This may derive from the need to manage and coordinate the supply of several international production units.

The management of supply chain strategy obtains emphasis also with regard to international and export companies. International supply chain requires extensive management of a comprehensive network consisting of many production units, suppliers and clients. The length of lead times for deliveries and the predictability of demand are indeed important in the international supply chain strategy (Christopher, Peck & Towill 2006).

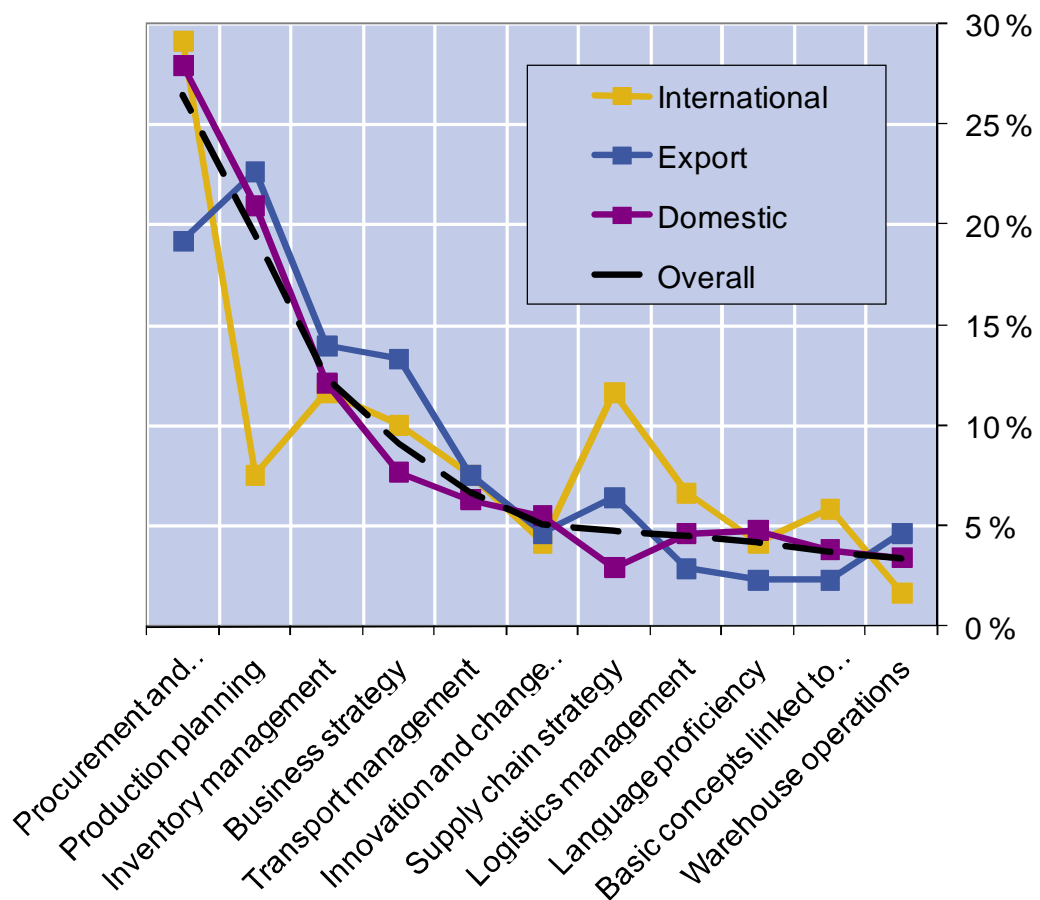


Figure 58 Most important development requirement of personnel in manufacturing and construction according to internationalisation, percentage of respondents, International enterprises n=120, Export enterprises n=172, Domestic market enterprises n=586, All n=878.

The importance of developing foreign language skills is on a surprisingly low level, particularly in export companies. The language skills of the staff may, of course, already be good. On the other hand, the significance of foreign language skills as an enabler of international supply chain cooperation and transparency should not be underestimated, particularly in new market areas (Lorentz 2008).

6.5.2 *Trading*

6.5.2.1 Company level development requirements

The estimates for the trading industries regarding the most important area of development in logistics for the next five years have been presented in Fig. 59. The order of importance is similar to that in the manufacturing enterprises: the improvement of customer service and reduction of logistics costs are the most important targets for development. Improvement of customer service is brought to the fore in trading with greater emphasis than in manufacturing. Moreover, the selection of logistics service providers would appear to be somewhat more important to businesses in the trading industry than in manufacturing.

Reduction of the ecological footprint and the management of security risks represent a marginal area for development in the trading industry. The greatest proportion of the respondents concentrated within these sectors are micro-enterprises in the “other retail trade” industry (not food products, beverages and tobacco).

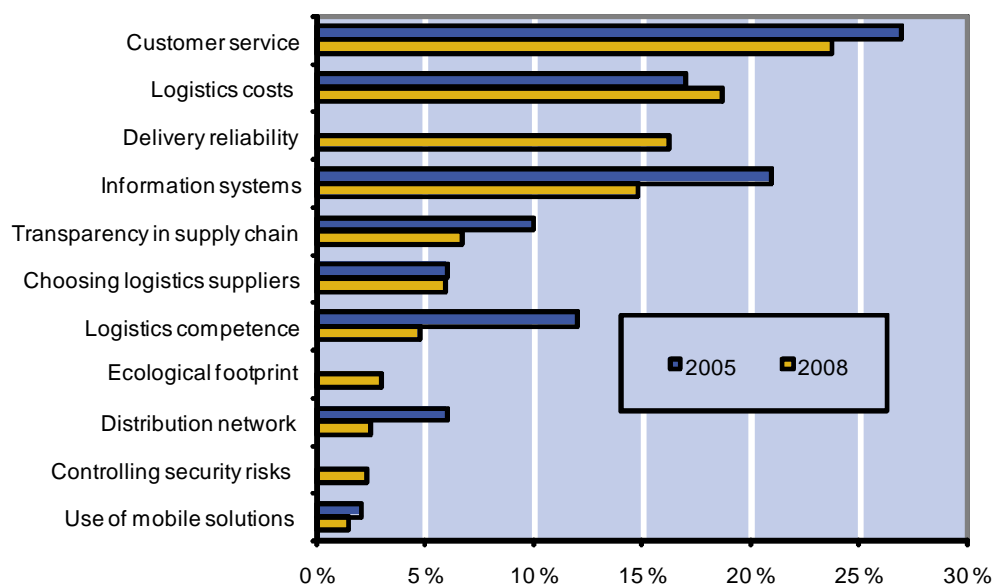


Figure 59 Most important development requirement in trading industries, percentage of respondents, 2008: n=744, 2005: n=739. Each respondent could select the most important development requirement for his/her enterprise for the next five years (5)⁶.

In comparison to the results for the year 2005, the significance of cost management would appear to have gained in importance. As a new theme, the improvement of supply accuracy is the third most important development requirement. The development of information systems and personnel expertise was given less attention than before.

⁶ As compared to Logistics Report 2006, the respondents now had more alternatives to choose from as the most important development requirement. The three new alternatives were: improvement in delivery reliability, improvement in the enterprise's ecological footprint, and management of security risks.

In the trading industry as well, the size of the enterprise intrinsically impacts the prioritization of development targets. The improvement of customer service is emphasized in small-sized and micro-enterprises, while in large- and medium-sized companies this sector is in fifth and third place in prioritization.

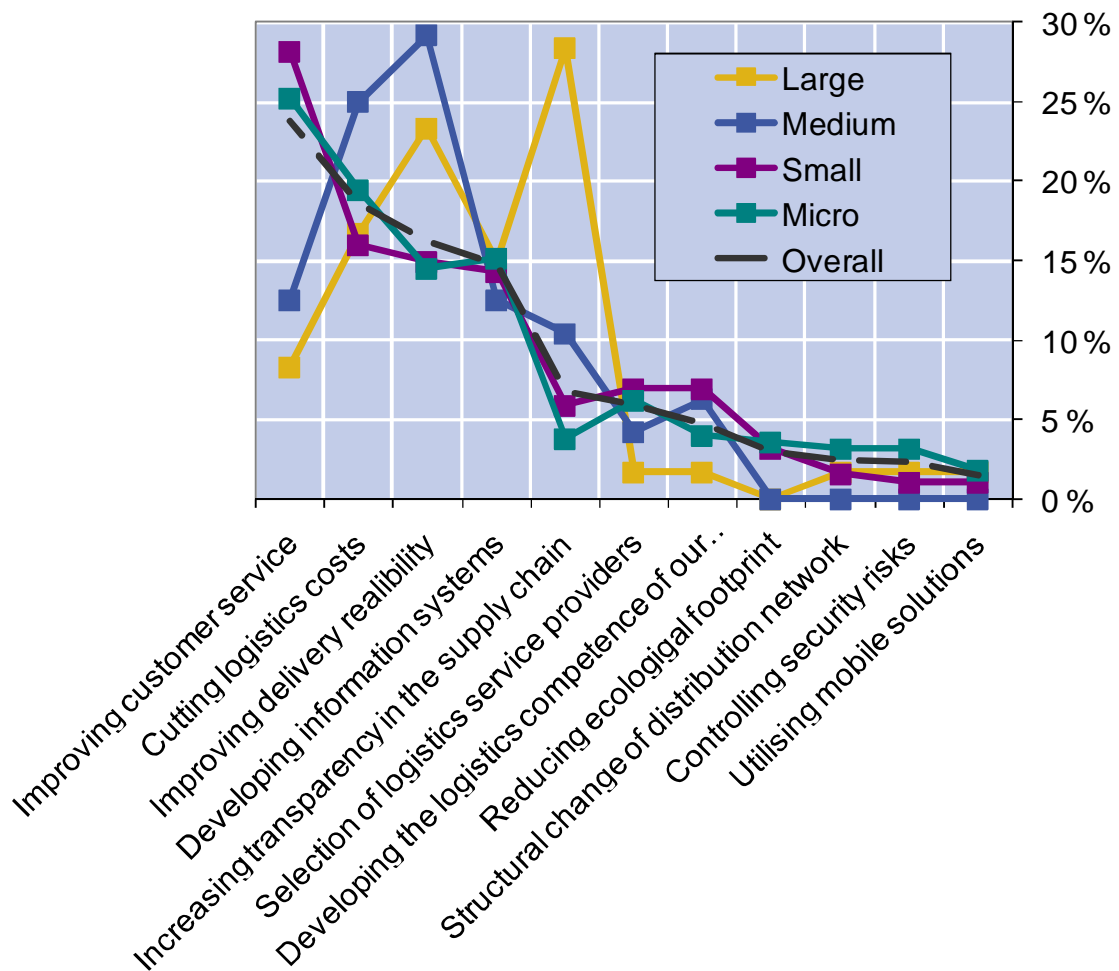


Figure 60 Most important development requirement in trading industries according to size of enterprise, percentage of respondents, Large enterprises n=60, Medium-sized enterprises n=48, Small enterprises n=188, Micro-enterprises n=448, All n=744.

In the medium-sized and large companies, the improvement of supply accuracy represents a highly important target for development. In the large companies, increase in the transparency of the supply chain is regarded as the most important target for development. Consequently, various supply chain cooperation concepts – such as VMI⁷ and ECR⁸ – shall continue to be timely.

⁷ Efficient Consumer Response = effective consumer-oriented cooperation (consumer product manufacturers and retail trade)

⁸ Efficient Consumer Response = effective consumer-oriented cooperation (consumer product manufacturers and retail trade)

The reduction of the ecological footprint is hardly regarded as much of an important target for development at all, particularly in the large- and medium-sized enterprises. The management of security risks is mentioned as an important development target by a rather small group of respondents.

6.5.1.1 6.5.3 Personnel-related development requirements

Trading firms were requested to assess some of the most important areas where the company would most benefit from raising logistics expertise on the part of personnel. Fig. 61 compares the responses in the previous report with those in the new one. Procurement and purchasing is, in the manner of the previous report, the most significant area for development on the part of personnel, and its weight would appear to have further increased. The same applies to inventory management which, in the manner of the previous report, is the second most important target of development in trading. The rise in prices for raw materials and in the general cost level appears to have impacted the above-mentioned development. The significance of transport management, supply chain strategy and foreign language skills was, in 2008, plainly lower than in 2005.

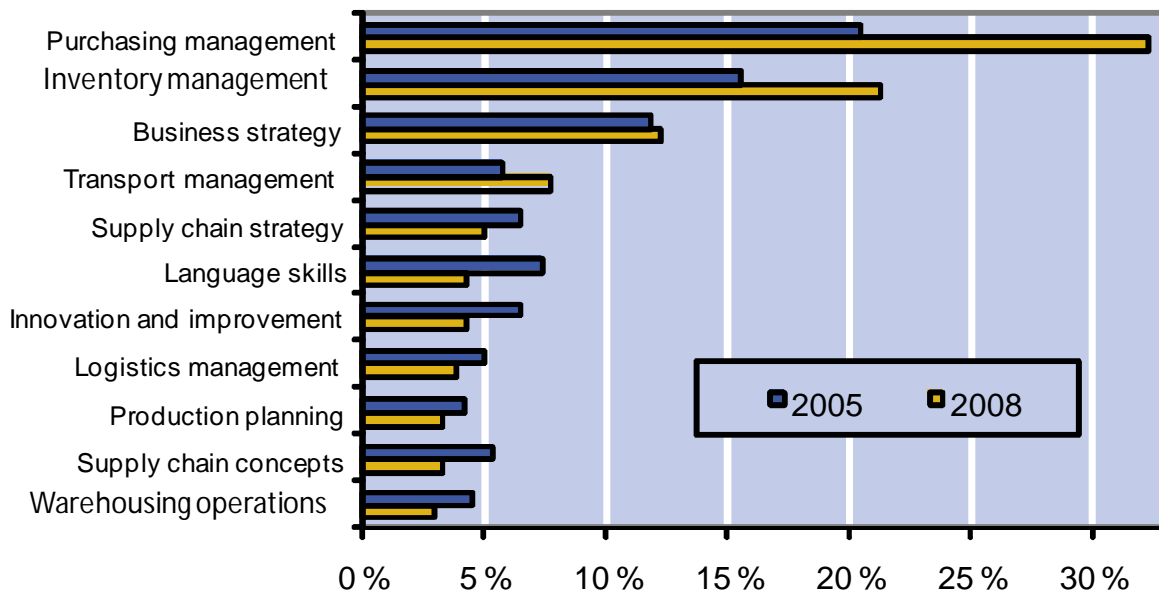


Figure 61 Most important development requirement for personnel in the trading industries, percentage of respondents, 2008: n=740, 2005: n=659. Each respondent could select the personnel's most important development area whose level the enterprise could most benefit from raising.

The logistic expertise development requirements for personnel in the trading industries are examined in accordance with size of enterprise in Fig. 62. The differences between the size classes are not very large in the trading industries. Procurement and purchasing functions are the most important target for both large-sized and micro-enterprises. Inventory management is the most important expertise-related development target in only about 8% of the large enterprises, while the enterprises in the other size classes value this particular sector much more.

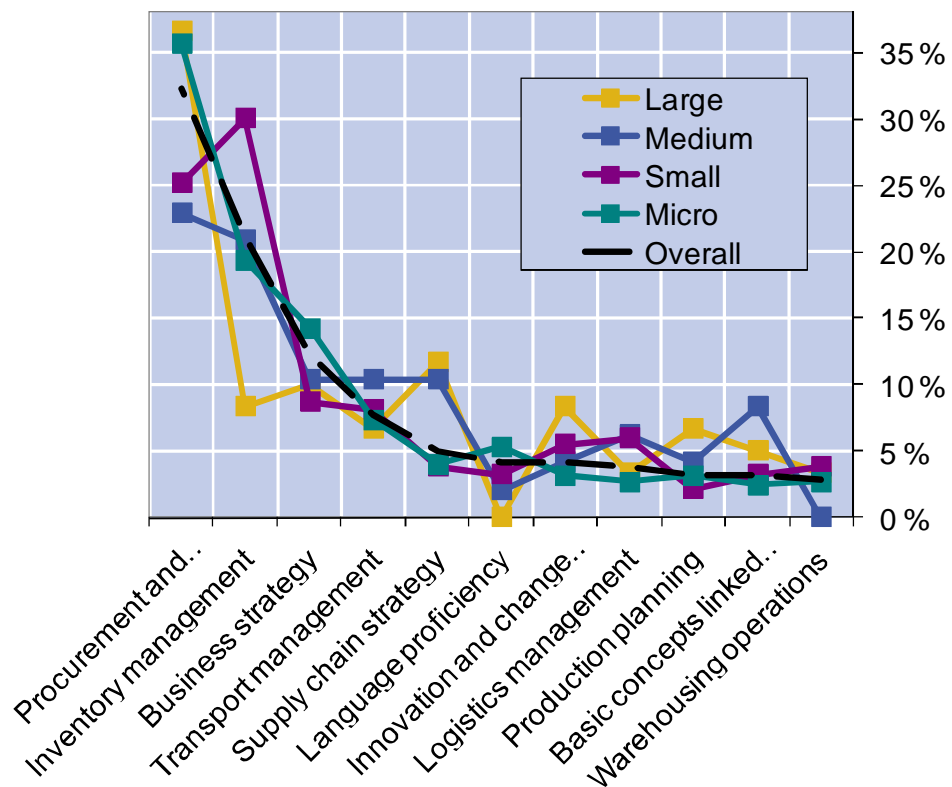


Figure 62 The most important development requirement for personnel in trading in dustries according to size of enterprise, percentage of respondents, Large enterprises n=60, Medium-sized enterprises n=48, Small enterprises n=183, Micro-enterprises n=449, All n=740.

The development of expertise linked with the supply chain strategy is emphasized in the large and medium-sized companies more than in the others. Supply chain concepts, and perhaps also foreign language skills, are the most important development needs in a small group of respondents.

6.6 Operational prerequisites in the site locality

Survey respondents were requested to assess the prerequisites of the company's base locality from the perspective of

- general business activity,
- placing of production,
- logistics functionality/effectiveness,
- traffic infrastructure and
- placing of competitors.

The percentage share of responses “good” or “very good” from all responses in the province are presented in Fig. 63. With ten responses or less, some of the provinces have been left out of the comparison due to the small amount of available data.

Fig. 64, conversely, presents the change in the percentage share of responses “good” or “very good” by province compared to the data in Logistics Report 2006. The results of both figures present the respondents’ opinions on the level of the entire province and the absolute differences between the various classes are small, so inconsistencies are possible.

6.6.1 Manufacturing

The respondents from industry were generally *satisfied from the general business perspective* (FUNC) with the prerequisites of their location. West and South Finland displayed greater satisfaction with the prerequisites than elsewhere in the country.

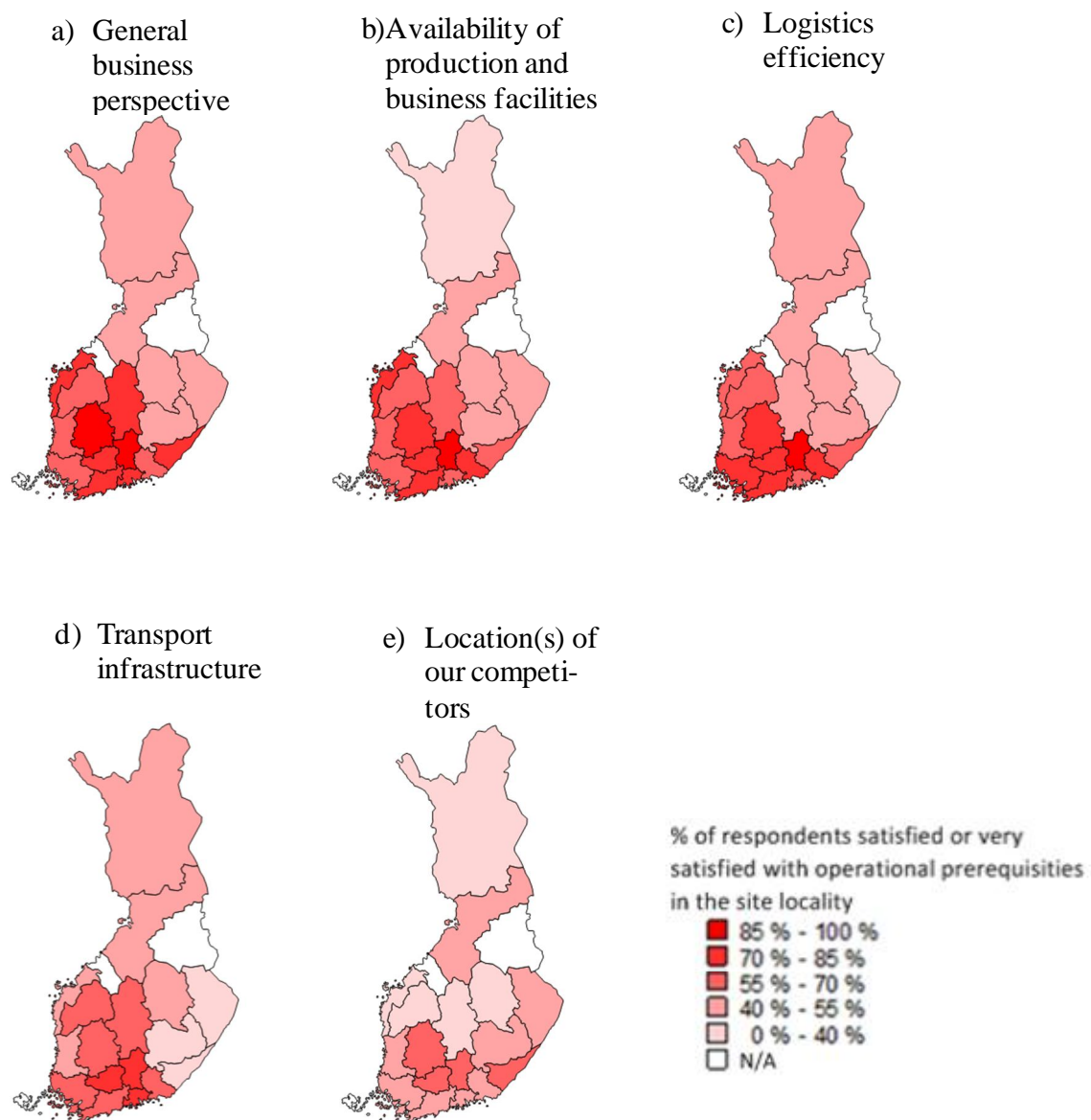


Figure 63 Comparison of manufacturing location-related operational prerequisites on a province-by-province basis, a) n=935, b) n=917, c) n=910, d) n=904, e) n=897. Grid: MapInfo.

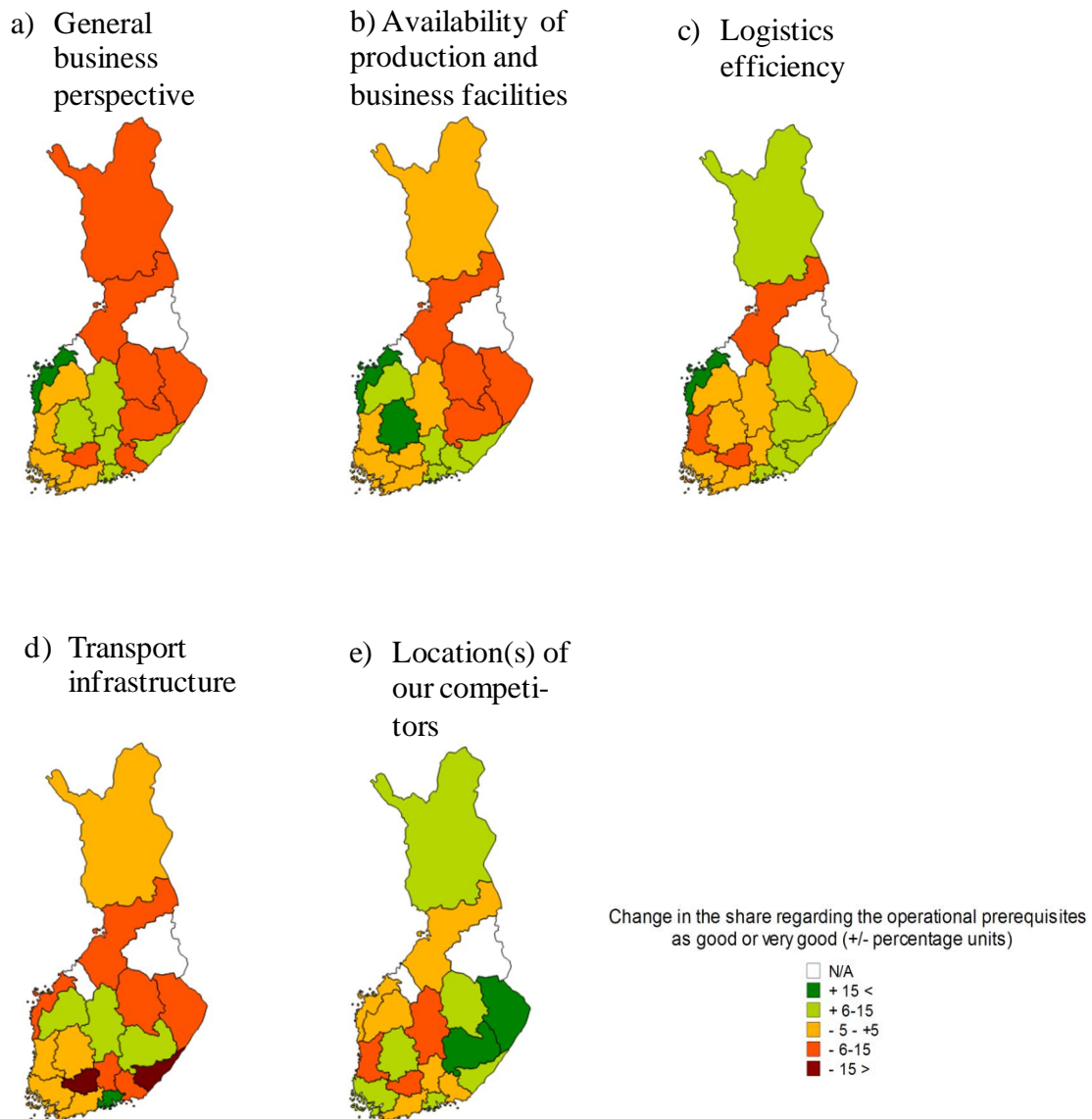


Figure 64 Change in the operational prerequisites of industry from 2005 on a province-by-province basis. 2005: n=814; 2008: a) n=935, b) n=917, c) n=910, d) n=904, e) n=897 Grid: MapInfo.

From the perspective of production placement, Lapland was regarded as the worst placement alternative. Less than 40% of the respondents regarded their locality as good from this perspective with regard to the prerequisites. The best operational prerequisites from the perspective of the placing of production were regarded as extant in South Finland (with the exception of East Uusimaa) as well as in Pirkanmaa and Ostrobothnia.

From the perspective of logistics effectiveness, the manufacturing companies considered their location as the best in the southern provinces as well as in Pirkanmaa and Kymenlaakso. This is quite understandable given the market, main ports and proximity of the airports in the capi-

tal city region. The location from the viewpoint of logistic effectiveness was considered favourable also on the west coast and in South Karelia.

From the perspective of the traffic infrastructure of the base locality, the representatives of the manufacturing companies were most satisfied in Kanta-Häme and Päijät-Häme as well as in East Uusimaa, where approximately 75–85% of the respondents regarded their location from the viewpoint of traffic infrastructure as good or very good. North and South Karelia as well as South Savo, which less than 40% of the respondents regarded as good or very good, were considered to be the worst localities with regard to their operational prerequisites by reference to traffic infrastructure.

Of all the operational prerequisites of the company's base locality, *location by reference to the placement of competitors* was regarded as the weakest on average: even at best, less than 75% of the respondents regarded the prerequisites of their base locality as good or very good. The differences between the provinces are also not as great as with other operational prerequisites in the inquiry.

Fig. 64, compares the change in the responses of the manufacturing enterprises in the Logistics Report 2006 with the responses in this enquiry. The change is expressed in percentage units. Compared to 2005, the opinions of the manufacturing companies on the operational prerequisites of their base localities have remained relatively similar. The share of those satisfied with their company's base locality generally from the viewpoint of business operations and traffic infrastructure has declined the most clearly.

The number of those who regard the prerequisites of their locality as good *generally from the point of view of business operations* has diminished particularly in North and East Finland (with the exception of South Karelia). On the other hand, the prerequisites of the locality for business operations were considered better than previously in the provinces of Central Finland and Ostrobothnia.

From the perspective of placing production by comparison to 2005, a larger part of the respondents in industry regarded the prerequisites of their locality as favourable in West and Southeast Finland. In East Finland, the numbers of those who regarded the prerequisites as good had declined to some extent. The view of the manufacturing companies on the prerequisites of their base locality with respect *to logistics functionality/effectiveness* indicated improvement particularly in Ostrobothnia as well as in Lapland, Savo and Southeast Finland..

From the perspective of traffic infrastructure, the share of manufacturing enterprises that considered the operational prerequisites of the company's base locality as good had declined, especially in Kanta-Häme and South Karelia. The quantity had also declined to some extent in Päijät-Häme and Kymenlaakso in addition to Ostrobothnia and the northern provinces. In the central area of the country, satisfaction with the prerequisites of the company's base locality had risen slightly.

With regard to *the placing of competitors*, the proportion of those satisfied with the prerequisites of their locality had grown on the previous report in a large part of the country: particularly in East Finland, but also in Lapland, Pirkanmaa, Southwest Finland and East Uusimaa. Conversely, the share had slightly decreased in Satakunta, Kanta-Häme and Central Finland.

Table 7 describes the opinions of respondents from industry on the operational prerequisites of the base locality from the perspective of placing of competitors as well as their changes from 2005 to 2008. Provinces with ten or less respondents in each enterprise class have not been included.

Table 9 *Operational prerequisites in the company's base locality: good or very good by reference to placing of competitors (share of satisfied respondents, percentage of respondents)*

Region	Domestic companies		Export companies		International companies	
	2005 n=575	2008 n=614	2005 n=190	2008 n=171	2005 n=162	2008 n=112
Uusimaa	62 %	53 %	50 %	36 %	41 %	63 %
Päijänne Tavastia	60 %	72 %	55 %	62 %	71 %	..
Pirkanmaa	56 %	61 %	49 %	68 %	42 %	33 %
Central Finland	47 %	48 %	50 %	31 %	38 %	..
Satakunta	43 %	51 %	69 %	25 %	58 %	..
Finland Prooper	42 %	54 %	38 %	30 %	26 %	64 %
Country total	44 %	52 %	42 %	40 %	39 %	46 %

Broadly speaking, the opinion of domestic market manufacturing enterprises on their base locality's prerequisites in relation to the placing of competitors indicates improvement. Nevertheless, satisfaction with their locality displayed by export firms has declined at the level of the country as a whole. The change is most visible in Satakunta, Central Finland and Uusimaa. On country level, the opinion of the international companies on their locations in relation to the placing of competitors has evolved favourably: almost half of the international enterprises regard their locations in this respect as either good or very good.

Closer examination of the locations of their most important competitors reported by the enterprises' (Fig. 65) allows to observe that the vast majority (95%) of Finnish manufacturing companies regard them as being located in Finland. With regard to the export enterprises, slightly over half of the respondents consider a company located in Finland as their most important competitor, whereas 40% of the respondents from the international companies think in the same way.

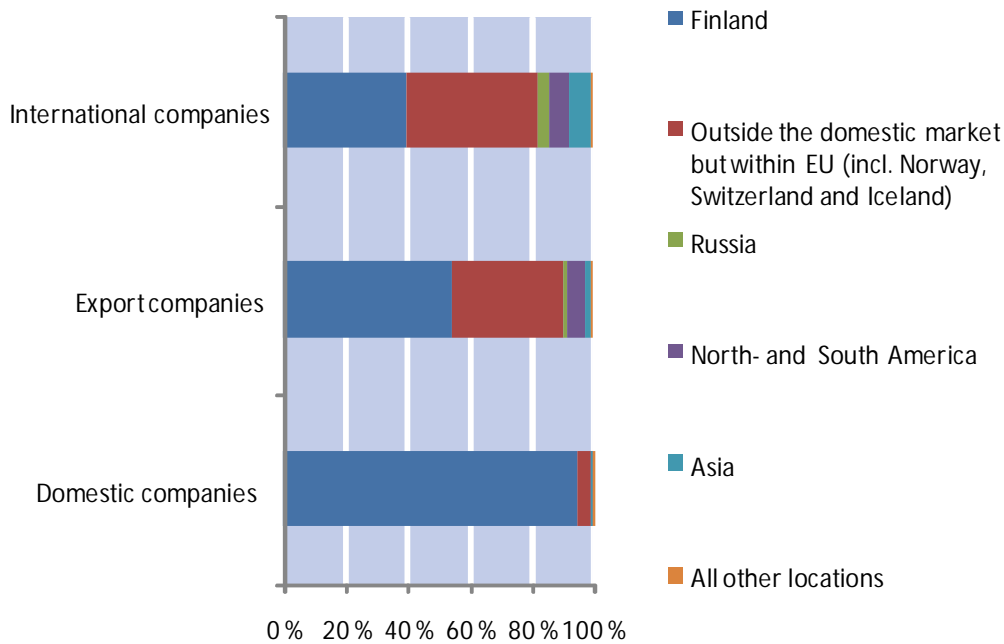


Figure 65 Manufacturing enterprises: geographical location of most important competitor

Approximately 40% of both international and export firms report respectively that their most important competitor resides outside Finland in the European economic zone (including the EU, Norway, Iceland and Switzerland). Of the international manufacturing enterprises which are specified to include at least one production unit abroad, 7% of the respondents regarded their main competitor to be a company located in North or South America. Similarly, 7% of the respondents from international manufacturing companies considered their most important competitor to be from Asia.

6.6.2 Trade

The respondents from the trading are, on average, satisfied with the operational prerequisites of their companies' base locality *from the perspective of business operations generally*. With the exception of Lapland (41%), over half of the respondents from the provinces regarded the prerequisites in this respect as either good or very good.

From the perspective of *production location*, the operational prerequisites of the companies' base locality were mainly regarded as somewhat weaker; although a sufficient number of responses to this question was obtained from fewer provinces compared to the other questions concerning operational environment. As the best areas, the businesses in trading selected Uusimaa and Pirkanmaa, while the next best were South Ostrobothnia, Southwest Finland, Päijät-Häme and North Karelia.

From the perspective of logistics effectiveness or functionality, over half of the trading enterprises in all provinces with the exception of Lapland regarded the operational prerequisites of the company's base locality as good or very good. The most satisfaction with the prerequisites of their locality was found in Uusimaa and South Ostrobothnia, where over 85% considered it as good.

From the viewpoint of traffic infrastructure, respondents from the trading industry regarded the prerequisites of their operational environment as the poorest in Lapland, the provinces of East Finland and Satakunta – though at least 40% and even more than half of the respondents in were satisfied with their location in this connection.

Also from the perspective of the placing of competitors, the businesses in the trading were, on average, satisfied with the operational prerequisites of their base localities; most dissatisfaction with the prerequisites was displayed in Lapland, west coast, and in the heart of East Finland. Compared to the manufacturing companies, the enterprises in the trading are, on average, more satisfied with their location in relation to competitors.

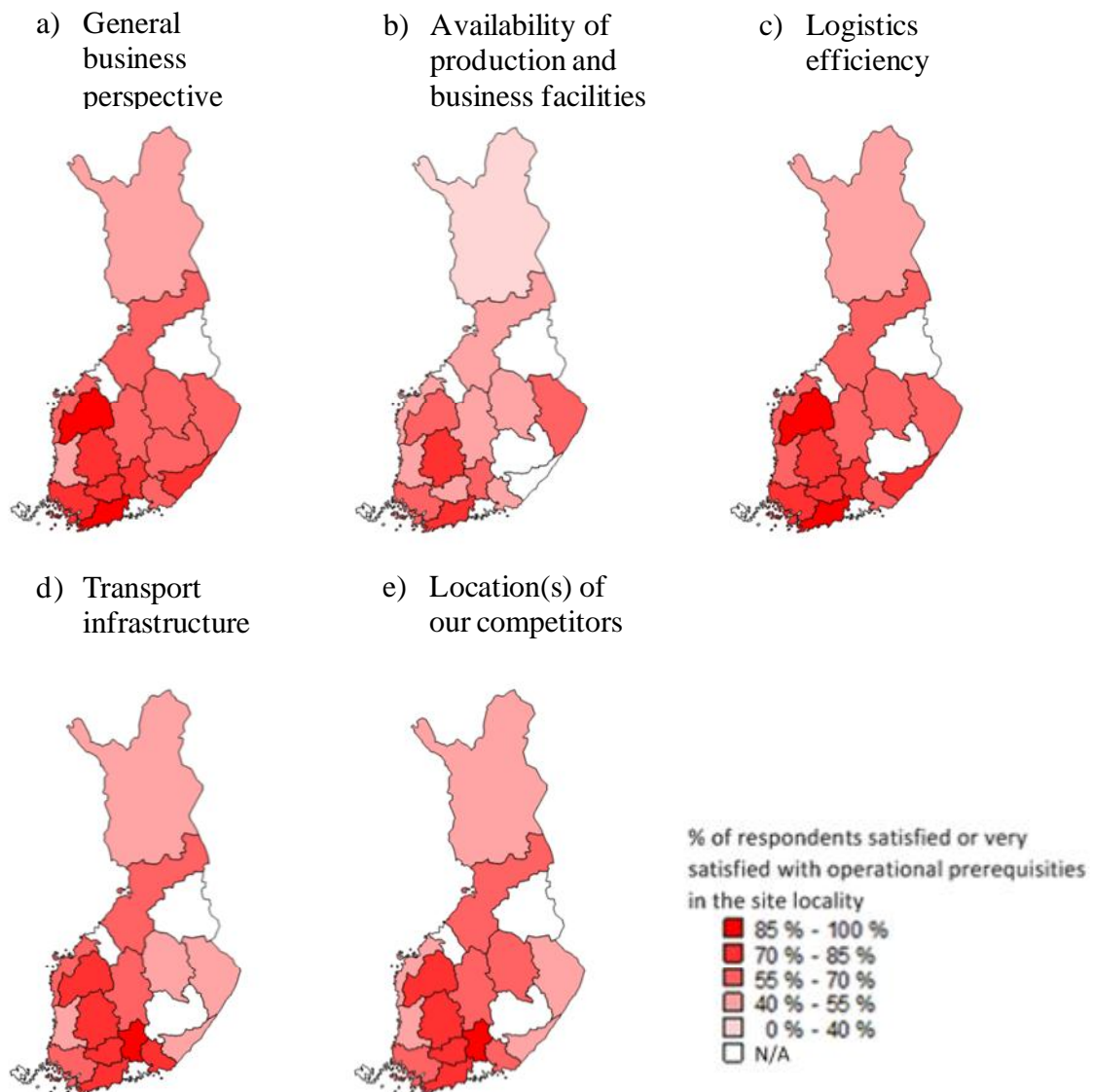


Figure 66 Comparison of trading location-related operational prerequisites on a province-by-province basis, a) n=754, b) n=607, c) n=731, d) n=719, e) n=724. Grid: MapInfo.

In examining the change in views on the part of the trading companies respondents from 2005 to 2008 (Fig. 67), it is noted that the share of satisfied respondents with the operational prerequisites of their locality *from the perspective of business activity in general* has declined in virtually the entire country. The exception to this is Uusimaa and South Ostrobothnia.

In the same way, the proportion of respondents satisfied with the prerequisites of their locality with regard to the *placement of production* has clearly diminished in size in most of the country. The share of those satisfied with the prerequisites has increased only in Uusimaa.

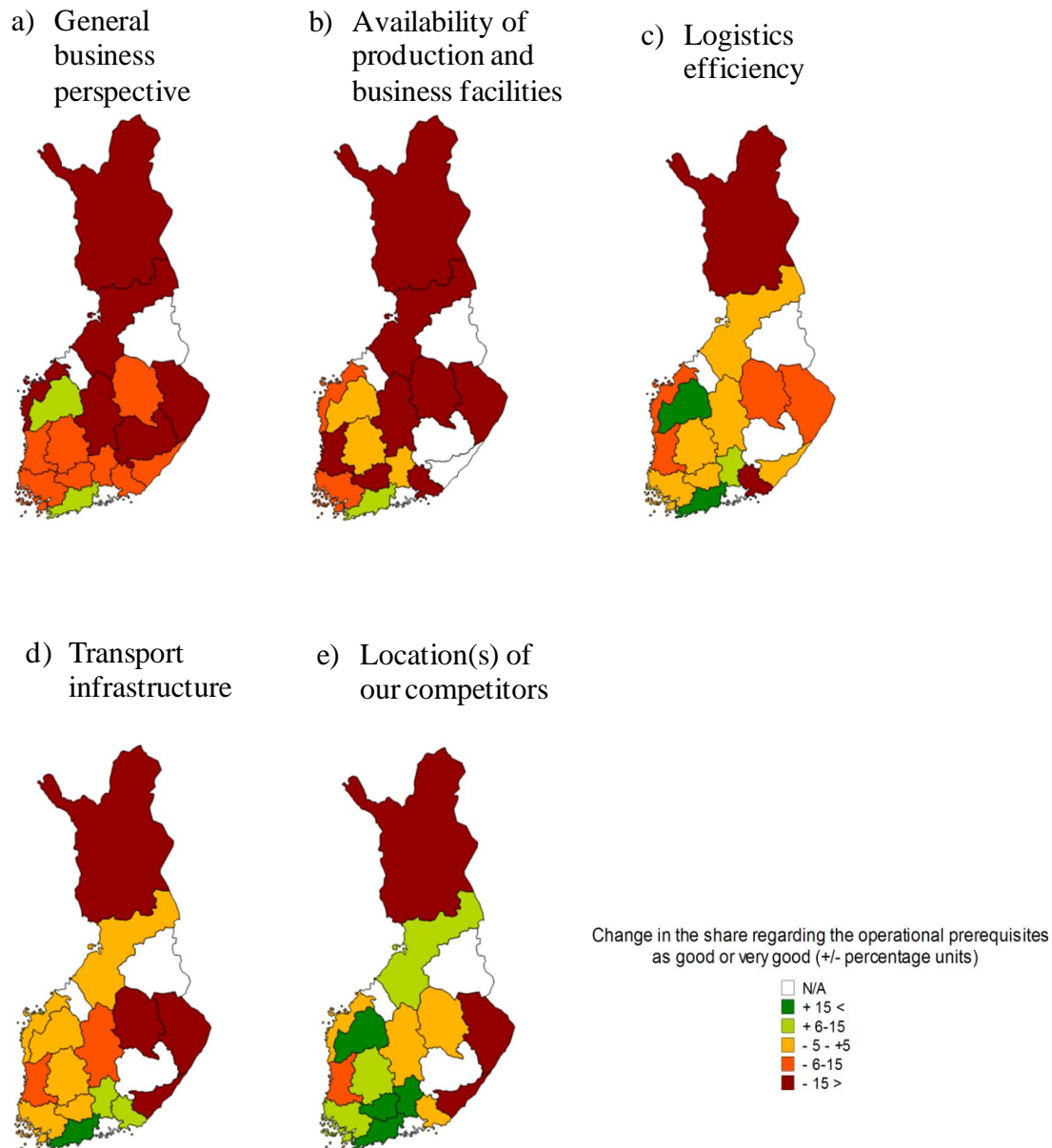


Figure 67 Change in the operational prerequisites of commerce from 2005 on a province-by-province basis. 2005: n=618; 2008: a) n=754, b) n=607, c) n=731, d) n=719, e) n=724. Grid: MapInfo.

With respect to *logistics functionality/effectiveness*, the share of those regarding the operational prerequisites of their company's base locality as good had for the most part remained

the same. The exceptions are Lapland and Kymenlaakso, where the share of those satisfied had clearly diminished, and Uusimaa and South Ostrobothnia, where a clear majority of the respondents considered the prerequisites from the viewpoint of logistics functionality as good or very good by comparison to the previous survey.

From the perspective of *traffic infrastructure*, the share of respondents in trading who regarded the operational prerequisites of their locality as good or very good had grown in Uusimaa as well as in Päijät-Häme and Kymenlaakso on 2005. On the other hand, it had clearly declined in Lapland as well as in the provinces of East Finland.

The share of those satisfied with the prerequisites of their location in relation to the placing of competitors has, on the other hand, increased in many provinces, particularly in Uusimaa and neighbouring provinces as well as in South Ostrobothnia. Similarly, opinions have somewhat changed in a more favourable direction in Southwest Finland, Pirkanmaa and North Ostrobothnia. The share of those that regard the operational prerequisites of their localities as good in relation to the placing of competitors has diminished most clearly in Lapland as well as in the easternmost provinces.

6.7 Future threats as seen by the enterprises

Respondents in both the manufacturing and trading were asked what, in their view, the biggest risks to the business environment are likely to be during the next five years. From the alternatives given, the respondents were requested to choose the largest as well as second and third largest risks.

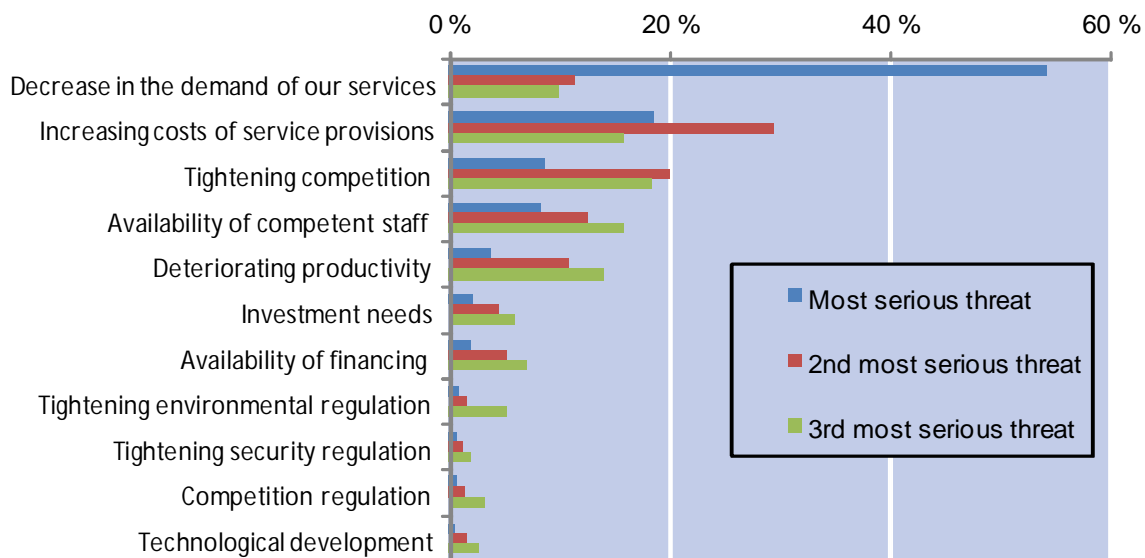


Figure 68 Largest risks in the view of manufacturing enterprises (percentage of respondents), greatest risk n=934, 2nd largest risk n=915, 3rd largest risk n=906

One of the operational environment risk factors rose above all the rest: in both the manufacturing and trading, about half of those who responded regarded deterioration in demand as the

greatest threat in the future. About one-fifth of the respondents in both main industries selected the rise in costs as the greatest risk instead.

Of the risks considered most important, the tightening of competition rose to third place. 10% of the respondents from both industries regarded this as the most substantial risk to the future of their business environment during the next five years. Moreover, the availability of skilled staff and decline in productivity caused concern.

The same matters were generally regarded as the second and third largest risks. Almost one-third of the respondents in both industries considered the rise in costs and approximately one-quarter the tightening of competition as the second largest threat.

In both the manufacturing and trading, the tightening of competition was regarded most commonly as the third most substantial risk factor in the future. The availability of capable staff and the decline in productivity as the third largest threat both gathered about 15% of the responses in both industries.

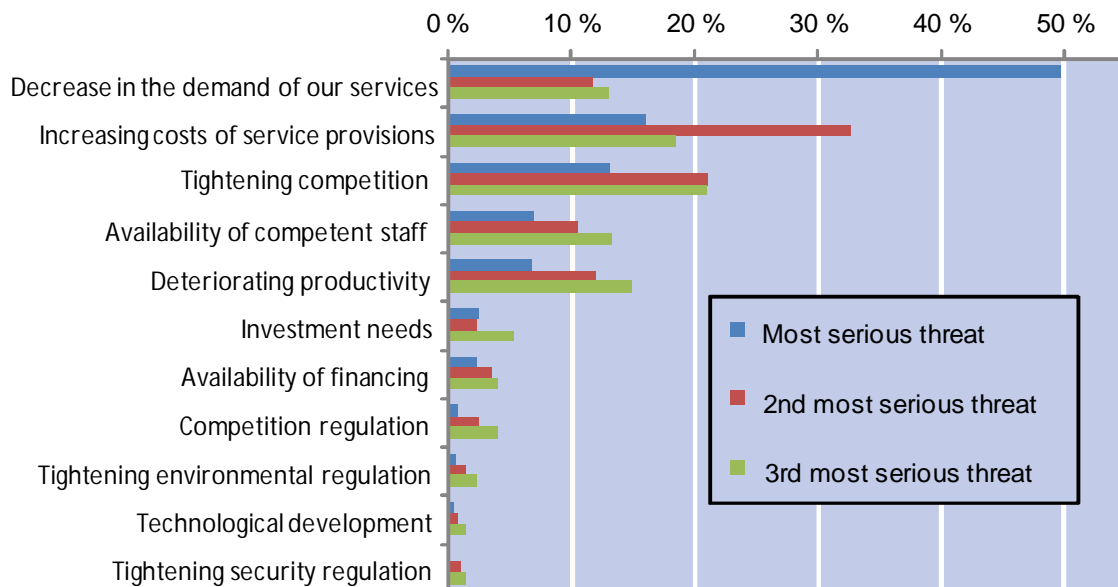


Figure 69 Three largest risks as seen by the enterprises in trading (percentage of respondents), largest risk n= 760; 2nd largest risk n=752, 3rd largest risk n=739

According to the placement of industry's most important market areas, it is noted in examining the most important risks that the differences are not very great. The domestic market enterprises are slightly less worried about the tightening of competition than the export and international companies. The decline in productivity represents a risk scenario in relative terms to somewhat more export firms than to other kinds of enterprises. Access to financing on its part was regarded as a threat by a slightly larger number of the respondents in international companies than in other types of companies.

In Fig. 70, the manufacturing respondents' first-priority future risks according to enterprise size are examined. The large manufacturing companies are slightly less concerned about deterioration in demand than the enterprises of other sizes: in the other companies, this alternative

was chosen by over half; of the respondents from large firms, 45% regarded this as the most significant threat. On the other hand, the large-sized companies saw the rise in costs as a clearly greater threat than the micro-enterprises (26% of the respondents compared to 16% in the case of the micro-enterprises).

Compared to the micro-enterprises, relatively more respondents from the large- and medium-sized firms also regard the tightening of competition as a significant risk (13–14% compared to under 10% in the smaller companies). Lack of access to capable staff was also seen as a future threat: About one-tenth of the respondents in the micro-enterprises and 3-7% in other sizes of companies regarded this as the largest risk.

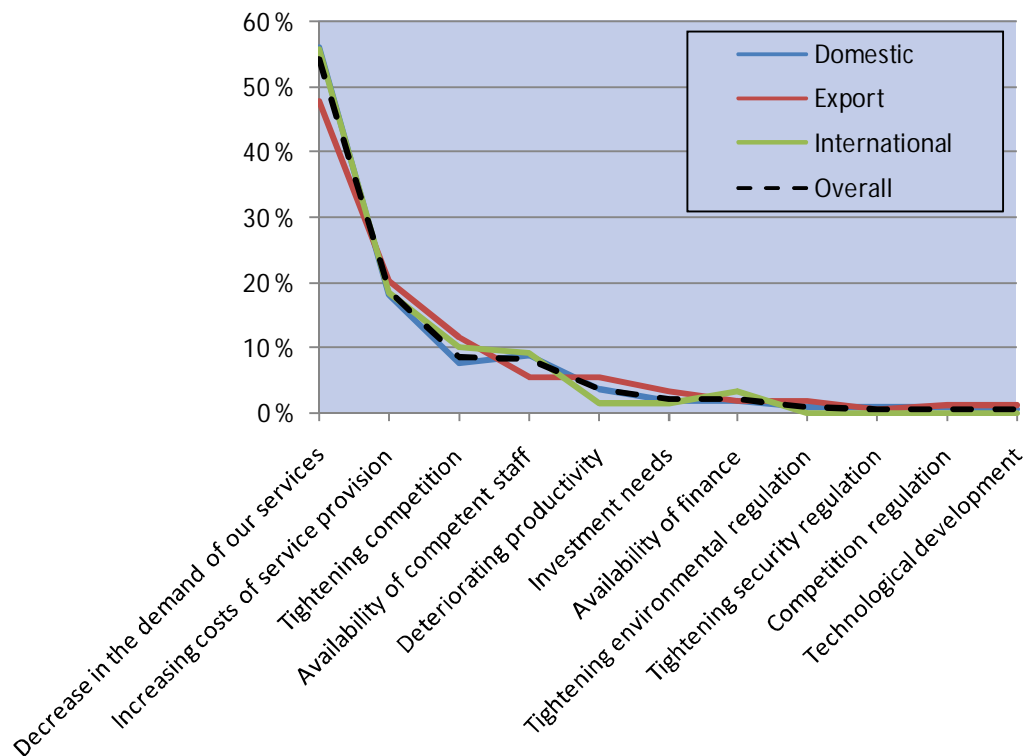


Figure 70 Greatest risks to manufacturing enterprises according to degree of internality (percentage of respondents), All n=934, Domestic market enterprise n=632, Export enterprise n=182, International enterprise n=120

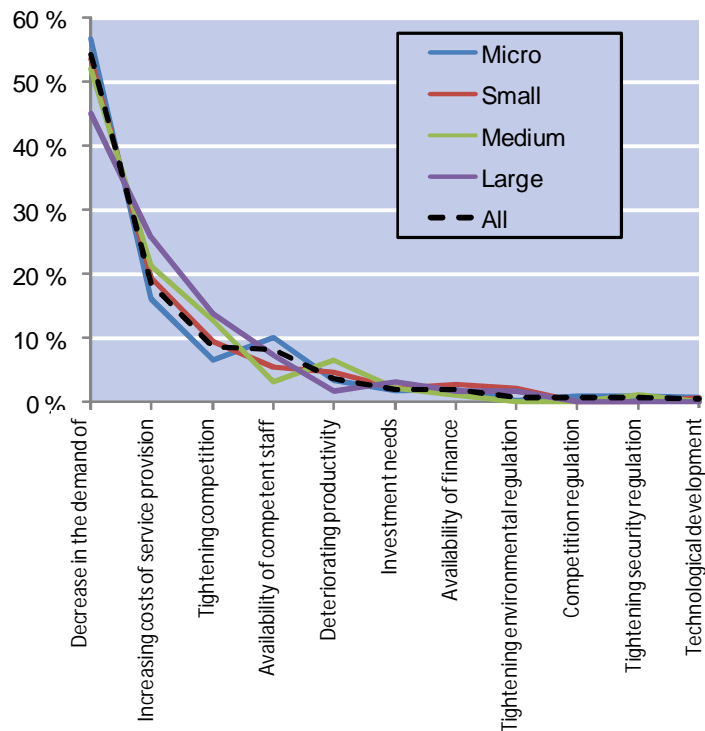


Figure 71 Greatest risks to manufacturing enterprises according to size of enterprise (per centage of respondents), All n=934, Micro n=567, Small n=149, Medium-sized n=94, Large-sized n=124

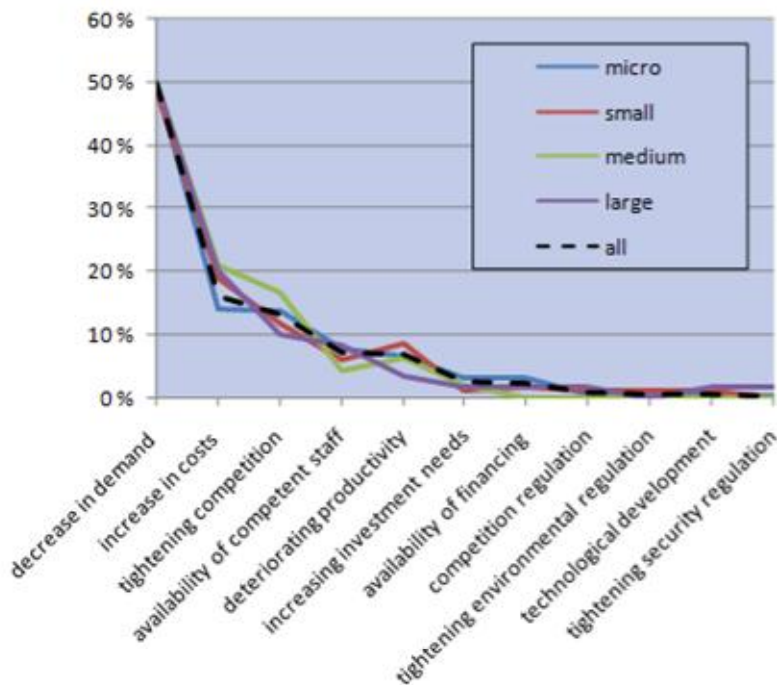


Figure 72 Greatest risks to trading enterprises according to size of enterprise. All n=760, Micro n=467, Small n=185, Medium-sized n=48, Large-sized n=60

In examining companies in trading according to enterprise size, it can be noted that a smaller part of the respondents from micro-enterprises regarded the rise of costs as a significant future risk than the enterprises of other sizes. The respondents from the large companies were, on the average, less concerned about decline in productivity than the rest. The tightening of competition was regarded as a significant threat in the future by a slightly larger part of medium-sized enterprises in trading than those of other sizes.

6.8 Outsourcing of logistics functions

6.8.1 Current situation of logistics functions-based outsourcing

Transportation, both domestic and international – bound up closely with return logistics in addition to, as one's own special area, freight forwarding – are the most commonly outsourced logistics functions within the midst of Finnish manufacturing enterprises. Over 90% of the survey respondents from the manufacturing and construction companies report that they have outsourced at least part of their Finnish transport operations. Of all the firms that had responded to the survey with regard to international deliveries, return logistics and freight forwarding, approximately 80% have outsourced at least part of these. The results are quite similar to those collected in the Baltic region in LogOn Baltic project (Ojala et al. 2007).

With regard to logistics functions, outsourcing is still more minimal for others involved in the survey. For example, with respect to logistics information systems, about 40% of the companies report that they have outsourced them either partly or totally, with approximately 60% still looking after the maintenance of the information systems connected with logistics themselves.

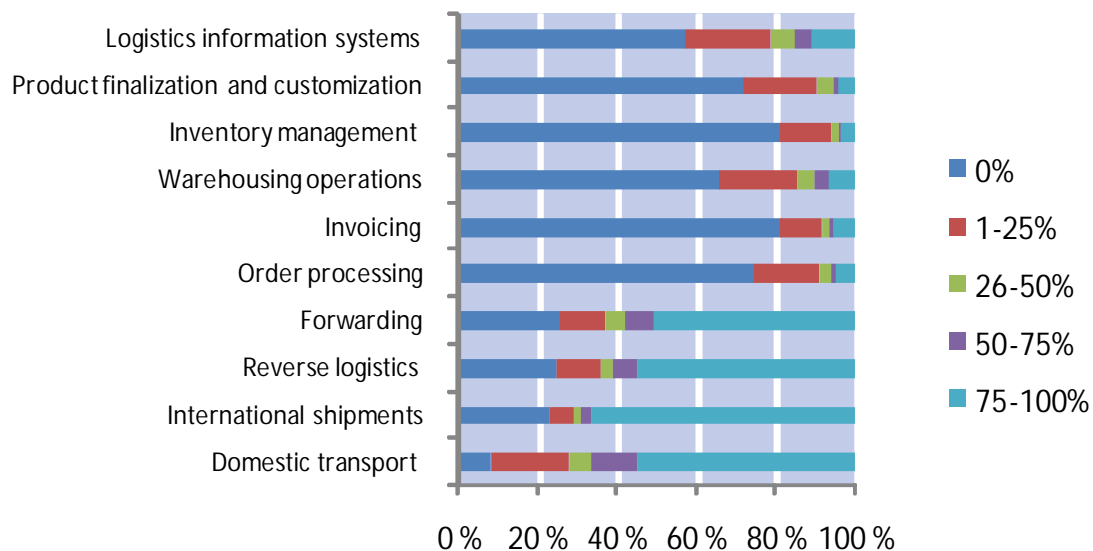


Figure 73 Share of outsourced functions in the logistics of manufacturing enterprises in 2008 (N=893)

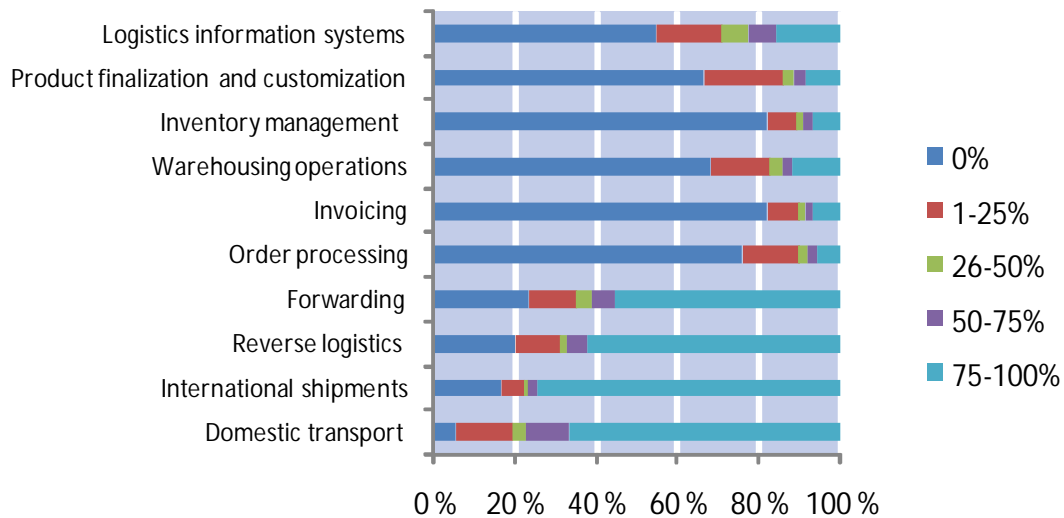


Figure 74 Share of outsourced functions in the logistics of trading enterprises in 2008 (N=743)

With regard to the trading enterprises, their responses on the level of outsourced logistics functions are currently amazingly similar. Also with respect to commerce, the most common either totally or partly outsourced logistics functions are domestic and foreign transportation, return logistics and freight forwarding.

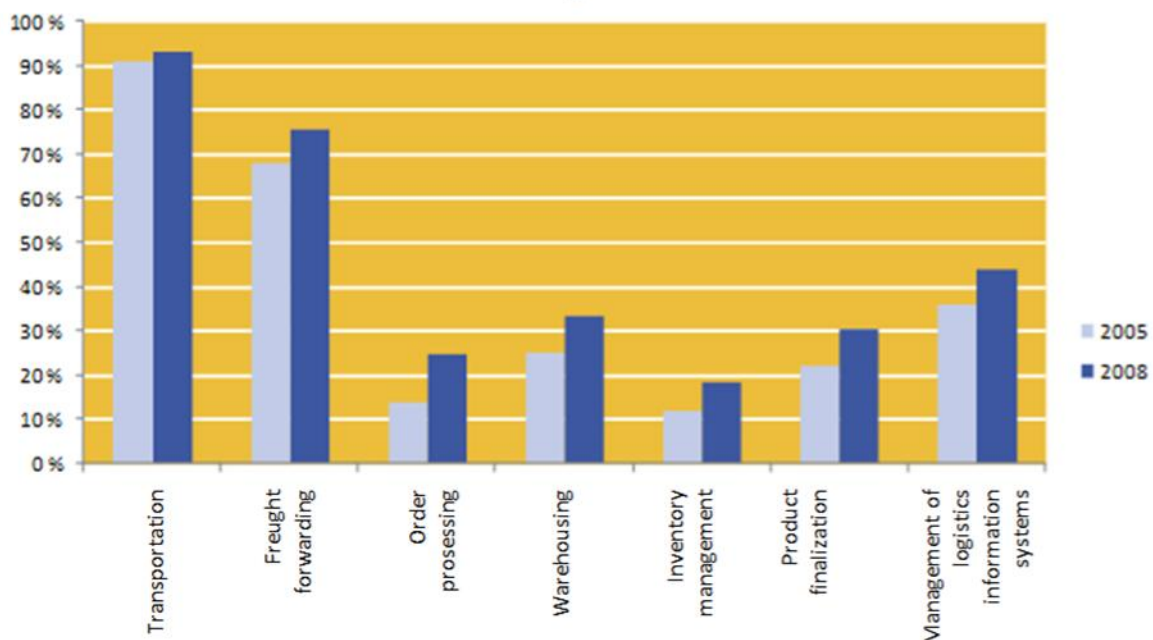


Figure 75 Comparison of the the prevalence of of logistics functions-based outsourcing in 2005 and 2008. Manufacturing and trading enterprises (N=1636)

In Fig. 75, results between this survey and Logistics Report 2006 are compared in both the manufacturing and trade on the outsourcing of logistics functions in the trading. On the basis of the previous report, the conclusions reached on the continuous increase in the outsourcing of operations can be corroborated in these respects. The outsourcing of operations, either entirely or partly, has increased in all operations examined.

Relatively speaking, the largest growth is found in the outsourcing of functions connected with the handling of orders, which has risen from the 14% level of the previous report to this one at 25%. The outsourcing of logistics information systems would also appear to have gained in prevalence: the share of companies either partly or totally outsourcing this function has risen from 36% to 44% from 2005 to 2008.

6.8.2 6.8.2 *Manufacturing and trading perspectives on the development of demand of logistics services*

In Logistics Report 2008, the viewpoint of companies with regard to the development of various logistics services over the next five years was also requested. Fig. 76 illustrates the responses of enterprises in manufacturing and construction on how demand for the various logistics functions will develop. It can be seen from the figure that, according to the respondent enterprises, the most growth potential in the near future will be in the development of service provision in the refinement and tailoring of various products whose demand was estimated by approximately 60% of the firms to increase in the future.

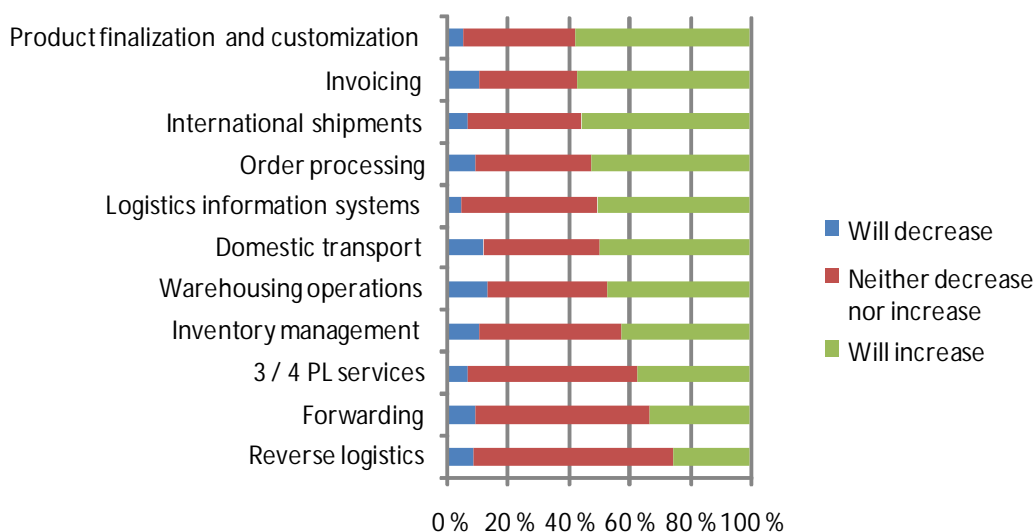


Figure 76 Perspective of manufacturing enterprises with regard to the development of demand for logistics services during the next five years (N=929)

Other logistics services having the most growth potential are those connected with various kinds of invoicing and order processing as well as international transportation. Increase in demand in these areas is anticipated by slightly over half of the respondents. The wording of the question is not precisely defined in terms of whether or not the growing demand in the future shall be focused on functions generated by the enterprise itself or externally purchased services, but some sort of deduction also with regard to development in the demand for the latter can be made on this basis.

It should be separately noted that the increase in the demand for services associated with logistics-based information systems, which had the greatest growth potential in the last survey, has in this survey lagged in 5th place respective to the respondents in manufacturing and trading. As stated above, services linked with information systems are already outsourced by approximately 45% of the respondent companies, and also on the basis of this survey, over half of the participants believe that demand for information systems-related services will continue to grow in the future as well. In summary, it can be stated that on the basis of the results in 2008, the increase in demand shall be the largest not only with respect to more traditional logistics services such as international transport, but also on the part of new services connected with the organization of production and the management of logistic information.

With respect to the enterprises in trading, the perspectives on the growing demand for logistics services can be noted as being for the most part similar to that of the group of respondents in industry. The services connected with the refinement and tailoring of the product are a natural exception, which can be presumed – owing to the basic character of the industry – to be in a less critical position for businesses in trading. Instead, services connected with invoicing have risen as those growing generally the most amongst the respondents in the trading. Approximately 60% of the respondents in this industry believe these services will grow. It is almost as commonly believed that demand for both international and domestic transport will grow. The least growth is anticipated in the services linked with freight forwarding and return logistics.

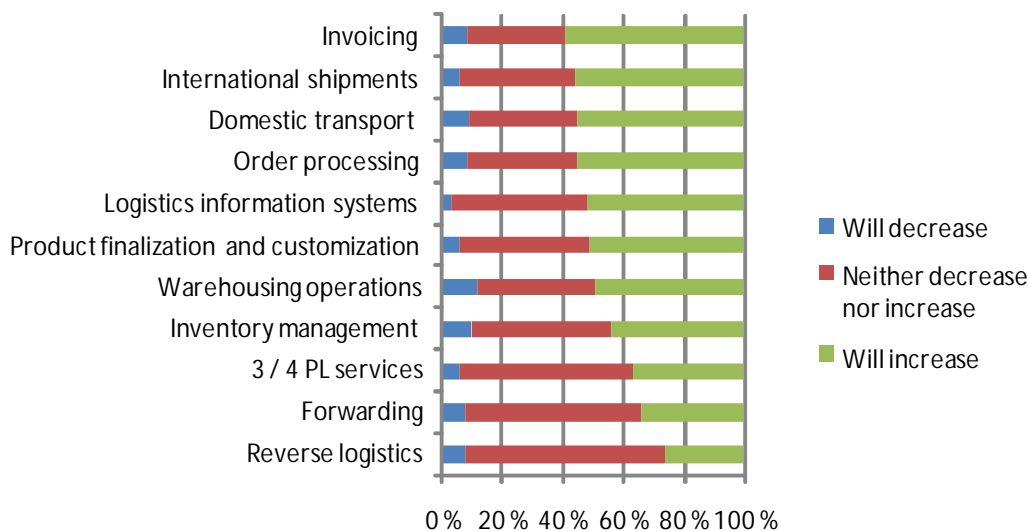


Figure 77 Perspective of the enterprises in trading on the development of demand for logistics services during the next five years (N=760)

The development of demand for logistics functions was the object of enquiry also from from logistics service enterprises on the services provision side. In Fig. 78, the extent of how much the perspectives of businesses buying and conversely offering logistics services are similar to each other have been compared, as well as in the respects that they differ from each other. Generally, it can be noted that the service enterprises are more optimistic on the development in the demand for various functions in the future. With regard to all the various functions, the

share of service companies predicting growth is greater than amongst the enterprises in manufacturing and trade.

In the main, it can also be noted that the perspectives on the demand and provision side correspond to each other with respect to the various services. Differences can also be found, of course. With respect to logistics-based information systems, the service enterprises are considerably (85%) more optimistic with respect to growth prospects than the manufacturing and trading enterprises that purchase services, of which approximately 50% believe the demand for services linked with logistics-based information services will grow in the near future.

There is also a substantial difference between the perspectives of the purchasers and providers of services between the 3rd/4th –party logistics services, in which about 70% of the logistics companies offering services believe in growth in demand in the near future, while the corresponding figure amongst the manufacturing and trading firms is below 40%.

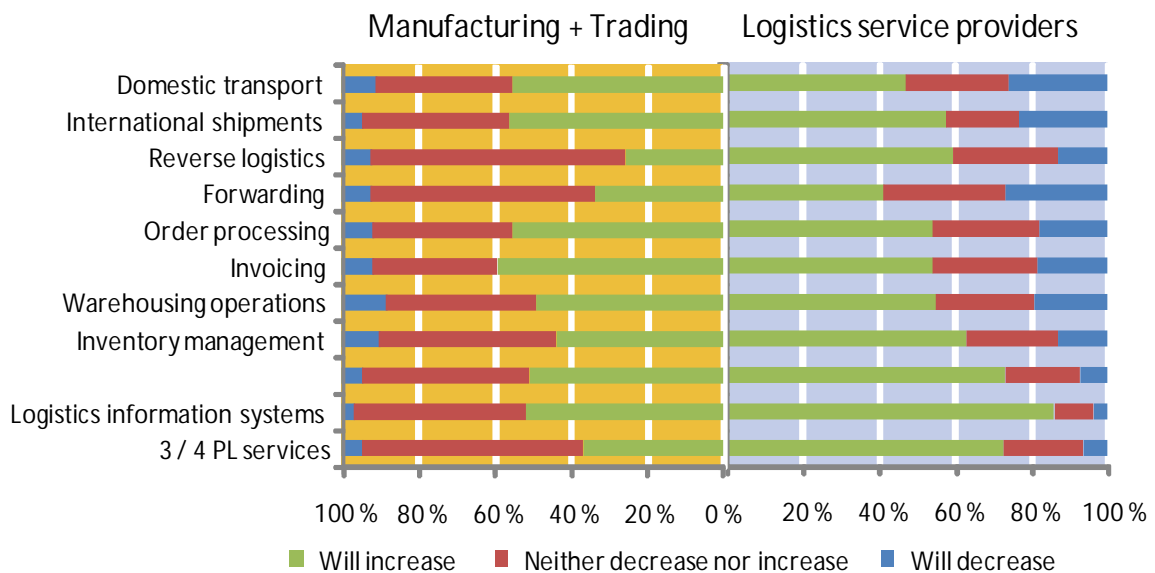


Figure 78 Estimates on the development of demand for logistics services during the next five years. (N:Manufacturing+Trade=1689, Logistics service enterprises:719)

It is quite feasible to perceive that the demand in growth on the part of customers will also focus on more traditional logistics services in the near future, including the services linked with information services; whereas a smaller section of the enterprises believe they will need third-party logistics services-type, service entities as time goes on. The targeting of demand can naturally also be explained on the basis of the size of the respondent companies. The demand on the part of small enterprises tends to be concentrated on individual services, while large enterprises also require broader service entities.

7 RESULTS FROM THE LOGISTICS SERVICE PROVIDERS

Essential observations in brief:

- With regard to the logistics service providers, the development requirements are connected with the expansion of service provision and the reduction of production costs
- The management of transport is increasingly being emphasized in the logistics service field
- The logistics service enterprises are satisfied with the level of their own expertise, but the general picture of this level with respect to the interest groups is also rather positive
- Satisfaction with the operational prerequisites of the base locality declined in most of the country with the exception of Uusimaa and its neighbouring provinces
- Over 40% of the respondents regarded the weakening in demand as the largest threat in the future, the lack of availability of capable personnel almost one-fifth

7.1 Respondent enterprises' customer structure

The customer structure of the Finnish logistics enterprises would appear to be strongly dependent on company size. Of the micro-enterprises, about half are those which have one single large customer making up 60–100% of turnover. The largest customer share of turnover declines as the size of the enterprise increases, and approximately 70% of the large businesses are already the kind whose largest single customer share of turnover is below 20%.

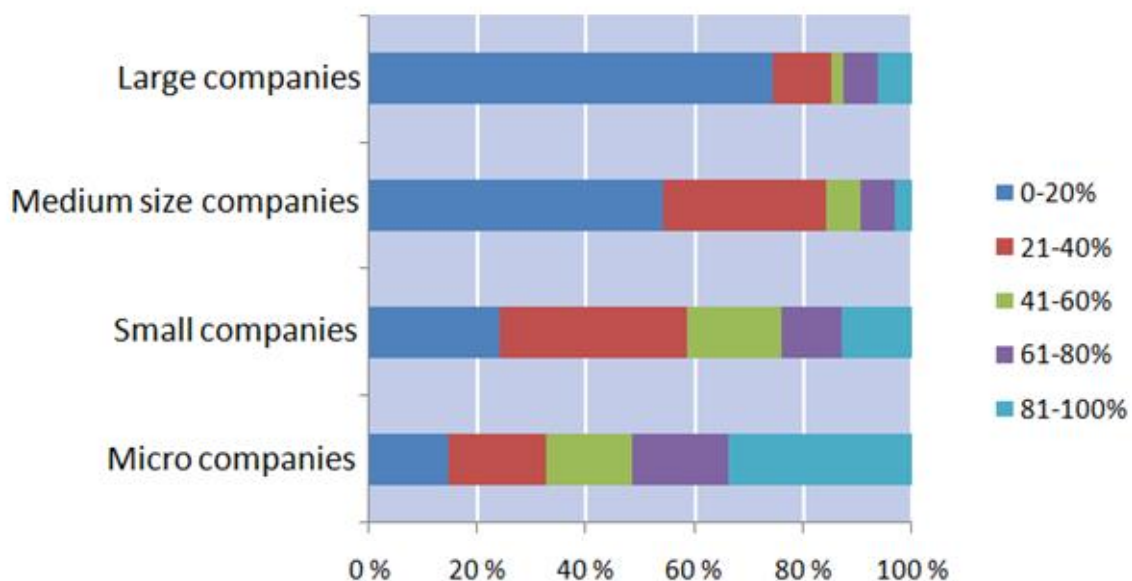


Figure 79 Turnover of logistics service enterprises, share of largest customer from turnover (N=871)

The larger logistics services firms can also be viewed as rather concentrated with regard to their clientele, since in examining the share of the five largest customers respective to the company's turnover, it can be noted that almost half of the small- and medium-sized companies are those whose five largest customers compose 60–100% of turnover.

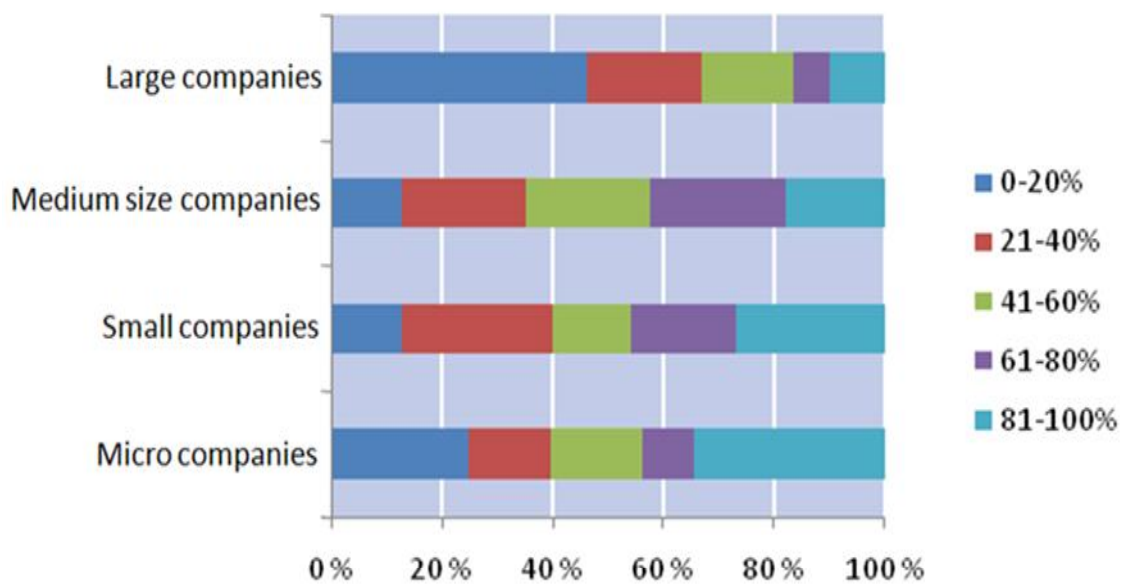


Figure 80 Logistics service enterprises: share of five largest customers from the turnover of the enterprise (N=871)

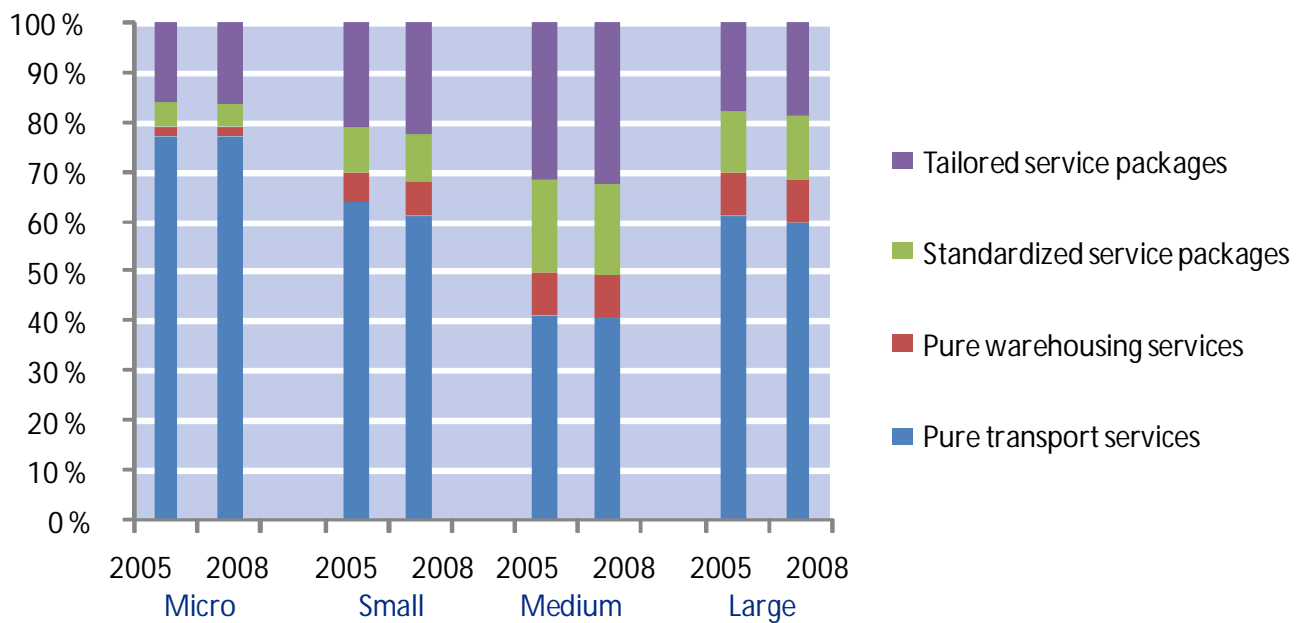


Figure 81 The distribution of turnover respective to logistics service providers for various types of services in 2008 and 2013 (estimate), presented with the respondent enterprises' average values (N=847)

Fig. 81 presents the distribution of turnover respective to the logistics service providers for traditional, individual logistics services such as cargo-handling and warehousing, and conversely for larger service entities that are either standardized or tailored on a client-by-client basis. It is possible to state on the basis of the figure that the share of the companies' operations in traditional, individual logistics services still varies between the 50% for medium-sized enterprises and 80% for micro-enterprises. It is possible to make an interesting observation with regard to the results of this survey by comparison to the previous report in 2006; in enquiring as to how the business enterprises anticipated the shares of turnover to develop as applicable to the various types of services during the next five years (by 2013), the same sort of clear transfer towards various types of service entities was not visible this time, as was the case previously.

7.2 Share of enterprises' international operations

The distribution geographically of turnover respective to logistics service enterprises of various sizes is presented in the following figure. In the survey this time, the response alternatives presented to the respondents were slightly different from the previous time, so making direct comparisons is not possible with all parts. The key observation is that the largest part of turnover for Finnish logistics enterprises is from Finland, the share varying between 93% in the micro-enterprises and 73% in the large-sized firms. A total of 5–15% derives from the turnover of the logistics enterprises in the area of the European Union. Russia's central position as Finland's trade partner does not show quite clearly in the functions of logistics businesses, as only about 5% of the turnover respective to Finnish logistics companies derive from Russia.

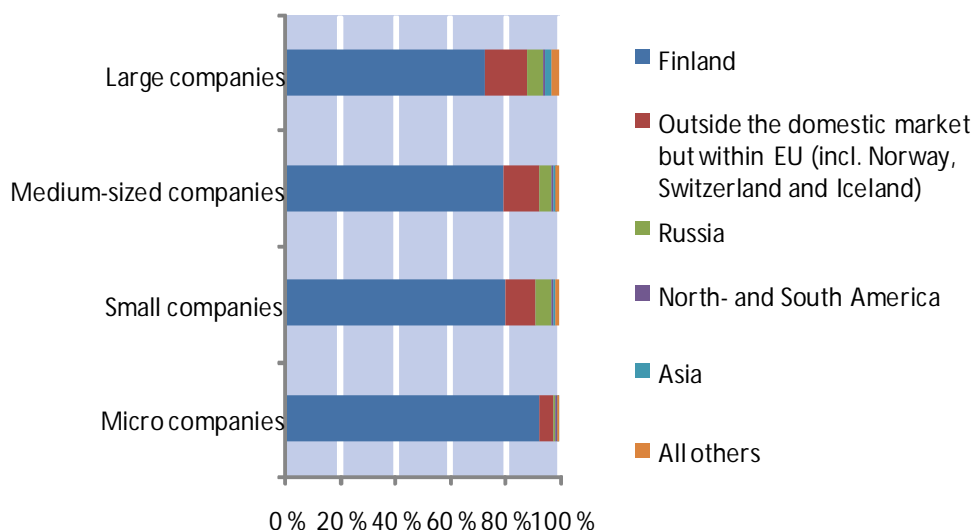


Figure 82 Geographical distribution of the business operations of logistics service providers to various areas. (N=871)

Finnish logistics service enterprises also have operations outside the European Union. Although the share of activity outside the EU as based on turnover is comparably small, it can be noted that some Finnish logistics service companies have operations in virtually all continents.

In the main, Finnish transport and logistics companies serve the Finnish economy and foreign trade, and are not particularly actively involved in the logistics markets between third countries.

Of those that responded to the questionnaire study, 60% of the logistics firms represented road freight traffic. Due to the group's large proportion, some of this chapter's figures have been presented so that the responses of other logistics service enterprises as well have been shown with their own descriptors. In Finland, the freight traffic carried on by road is, in terms of tonne kilometres, over 90%, and almost 80% of these tonnes were indeed purchased from the markets in 2006. These proportions are very high from a European perspective, which means that the markets for freight transport by road are highly developed. Of the EU countries, only the shares of Sweden and Estonia are larger than Finland's. (Eurostat 2008; Annex 11).

7.3 Logistics companies and information systems

In this report, the prevalence of corporate use of various technologies was examined on the basis of the previous report by means of a more concise battery of questions. Instead of examining various interest groups, this time only the matter of whether or not some technology is applied somewhere in the enterprise was determined. Fig. 83 presents the use of various technologies in companies of varying sizes.

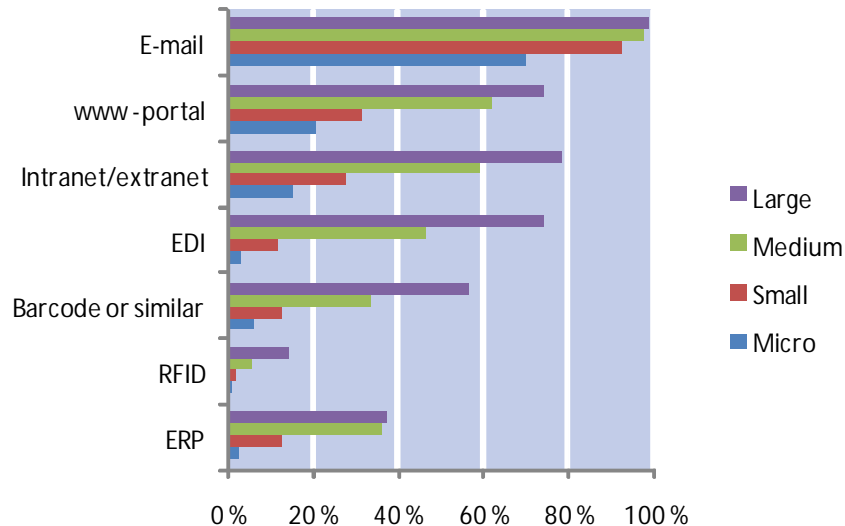


Figure 83 Use of technologies in business operations at logistics service providers, according to size of enterprise. (N=915)

The use of electronic systems is considerably more prevalent and versatile in the large enterprises. For example, Internet portal or intranet/extranet systems are used by almost 80% of the large companies, while the corresponding figures in the small-sized and micro-enterprises are in the 20–30% class. The use of email is relatively common, and approximately 70% of the micro-enterprises as well utilize email regularly. Those companies that do not regularly use email in their operations are typically the kind whose functions are feasible or even more eas-

ily handled by means of more traditional communications tools. These enterprises are, for example, represented in large numbers in the report by small entrepreneurial road transport firms whose communications with their interest groups are, due to the nature of the work, even easier to look after by telephone than by email.

In Fig. 84, the results of Finland State of Logistics 2009 are compared with those of the 2005 report with regard to technologically more advanced large firms. As can be seen from the figure, the results of the survey this time are quite similar in character to those of the previous report. Amongst the large enterprises, the EDI system is in use by 74% (in 2005, 77.6%), and the ERP system is utilized by 37.5% of the respondent firms (in 2005, 41.8%), so on their part no change as such can be reported with respect to the prevalence of applying these systems.

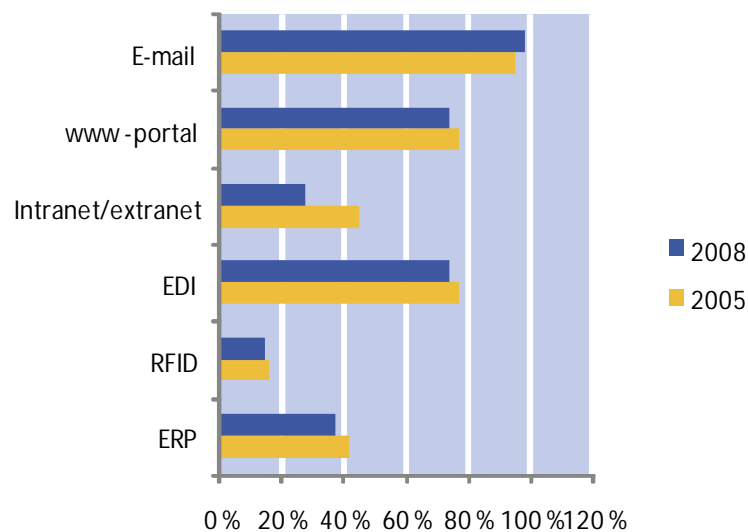


Figure 84 Use of technologies in large logistics service providers in 2005 and 2008 (N=111)

A significant observation is the stabilization of the use of RFID systems on the same modest level of 2005. One of the findings of the previous report was that the business enterprises expected the application of RFID systems to spread even vigorously in the near future. In three years, however, no real progress in this area has actually occurred. The previously anticipated "pioneer" that would lead the other business enterprises along as RFID users has therefore not yet been found.

7.4 Logistics-based expertise and development requirements

7.4.1 Company level development requirements

The estimates by the logistics service providers regarding the most important area of development over the next five years are presented in Fig. 85. Contrary to the manufacturing and trading industries, priority was given to the expansion of service provision. The reduction of service production costs is clearly in second place, and the development of the cooperation network assumes third place.

Reduction of the ecological footprint with regard to logistics service enterprises is clearly mentioned more rarely than in the other main sectors. This tends to derive from the stringent competition in the industry. The management of security risks together with mobile solutions represent only a marginally important target for development. These enterprises are, for the most part, micro-enterprises engaged in road traffic-based freight transport.

In 2008, service production-related cost reductions were clearly a more important area for development than in 2005. The role of expansion in service provision has also increased in importance. On the other hand, the development of a agent network, staff training, the development of information systems and increase in the production capacity have lost their positions in comparison to the year 2005.

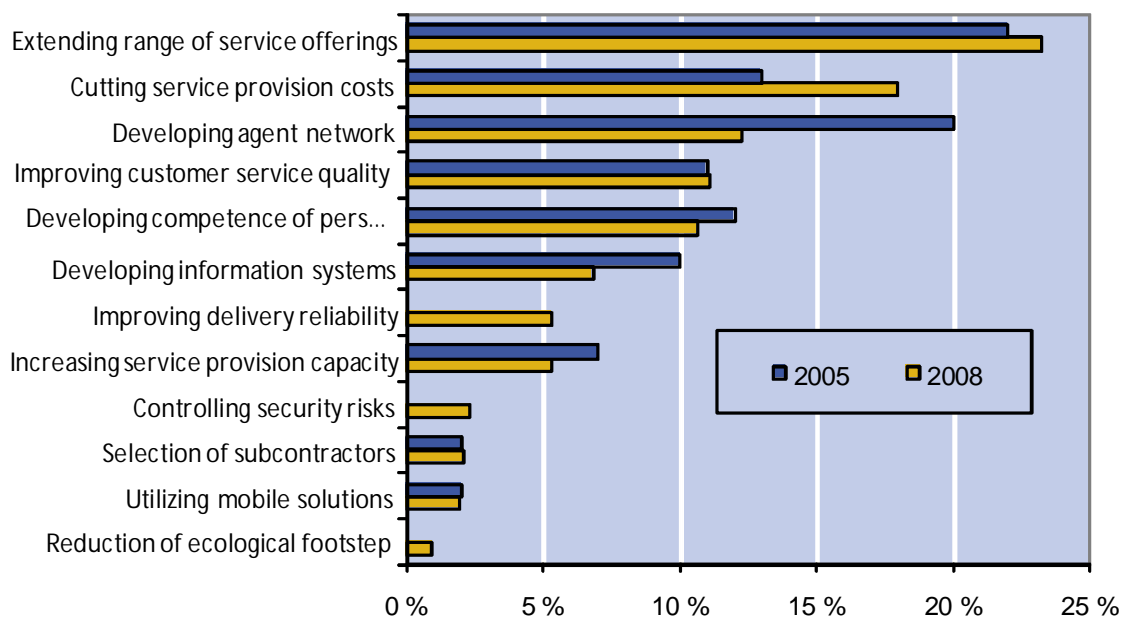


Figure 85 Most important development requirement in the logistics service providers, percentage of respondents, 2008: n=865, 2005: n=470. Each respondent could select the most important development requirement for his/her enterprise for the next five years⁹.

In Fig. 86, the enterprises' most important development requirements from the perspective of the industry are presented. In the transportation category, we include firms generating road, rail, water and air traffic services. The second industry category is composed of enterprises engaged in freight handling, warehousing, forwarding, freighting and postal as well as courier operations. The third industry category contains the business enterprises specialized in the management of logistic information systems as well as the other companies.

In the industry-based comparison, the transport companies differ clearly from the other operators, though expansion of service provision is indeed the number-one priority, regardless of industry. Of the respondents in the transport industry, the majority are road traffic-based freight transporters. In this industry, the operators are plentiful and competition in pricing is

⁹ As compared to Logistics Report 2006, the respondents now had more alternatives to choose from as the most important development requirement. The three new alternatives were: improvement in delivery reliability, improvement in the enterprise's ecological footprint, and management of security risks.

frequently quite hard, which has resulted in low profitability in the industry. Alongside low-margin services, there was a desire to supplement them by introducing services offering better margins.

The cutting of production costs is clearly more important to the transport companies than to other firms in the logistics service industry, particularly given the recent rise in fuel prices and salaries. As they are subjected to severe cost pressures, the reduction of the ecological footprint in transport companies is not one of the industry's most important concerns.

This minimal share is affected by the leading proportion of main alternatives in a rapidly changing economic situation in which the reduction of environmental impacts is reduced in importance in the face of harsh economic realities. It can be presumed that this has happened also elsewhere in the world.

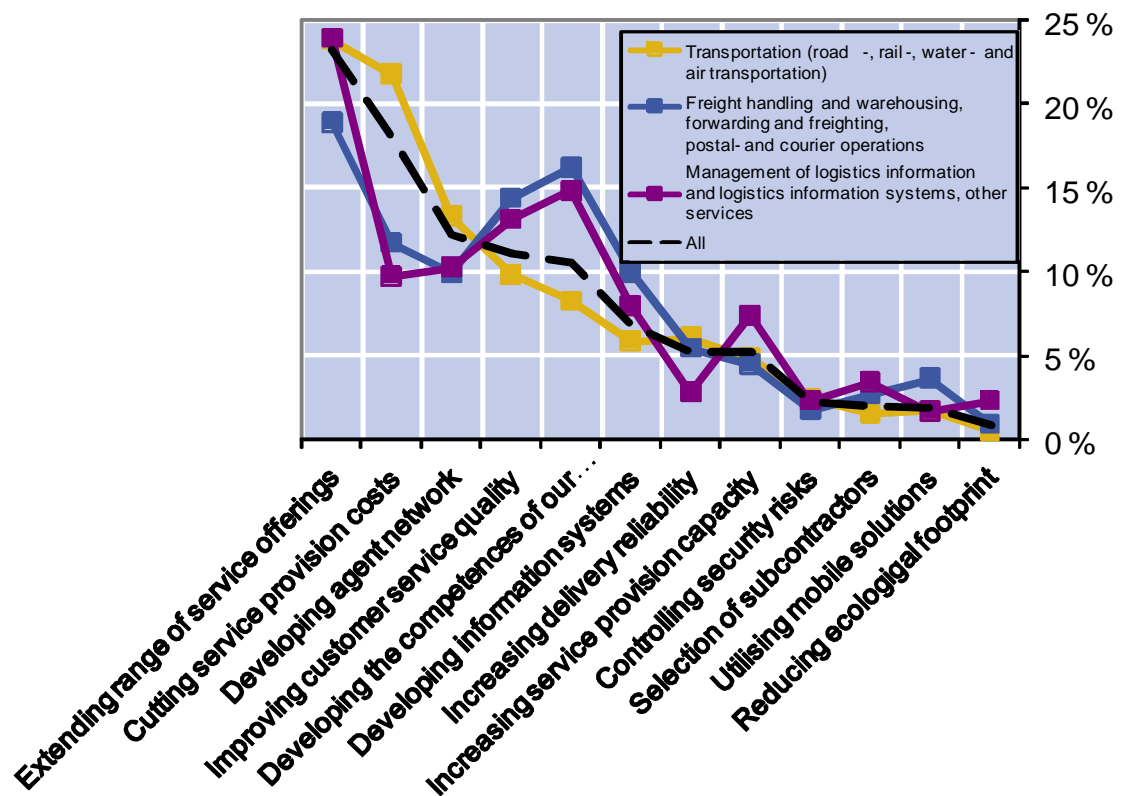


Figure 86 Most important development requirement for logistics service enterprises according to industry, percentage of respondents: Transportation (road, rail, water and air) n=579; Freight-handling and warehousing, forwarding and freight, postal and courier operations n=111; Management of logistic data and information systems, Other n=175, All n=865.

Still at the outset of 2008, the management of environmental impacts was vigorously emphasized in the collected data in, for instance, the report collated by the Transport Intelligence consulting firm, whose respondents totalled 450 companies in the industry from around the

world (Logistics Service Providers, LSP). Of these, almost 90% reported that environmental issues are either important or very important in the company's strategy, and over 68% had a formal environmental policy. It was still the case that 34.4% reported measuring the size of their company's ecological footprint. Those uncertain as to whether measurements were made or not totalled 21%, and enterprises that do not carry out such measurements totalled 44.5%. (Transport Intelligence 2008)

7.4.2 *Personnel-related development requirements*

Logistics service providers firms were requested to assess some of the most important areas in staff expertise which the company would most benefit from raising. As can be affirmed from Fig. 87, the management of transport is the most important area for development in this industry, and its significance has continued to grow since 2005. The weighting is also affected by the fact that in the 2008 respondent group there were, relatively speaking, many more road traffic-based transport firms.

In the prioritization, the arrangement of the next three expertise areas is, moreover, contrary to the previous report. Currently, logistics management-related basic skills take precedence over innovation and change management as well as business strategy-based areas of expertise. The current economic situation is forcing enterprises to concentrate on the consolidation of basic business operations and their maintenance rather than on new development.

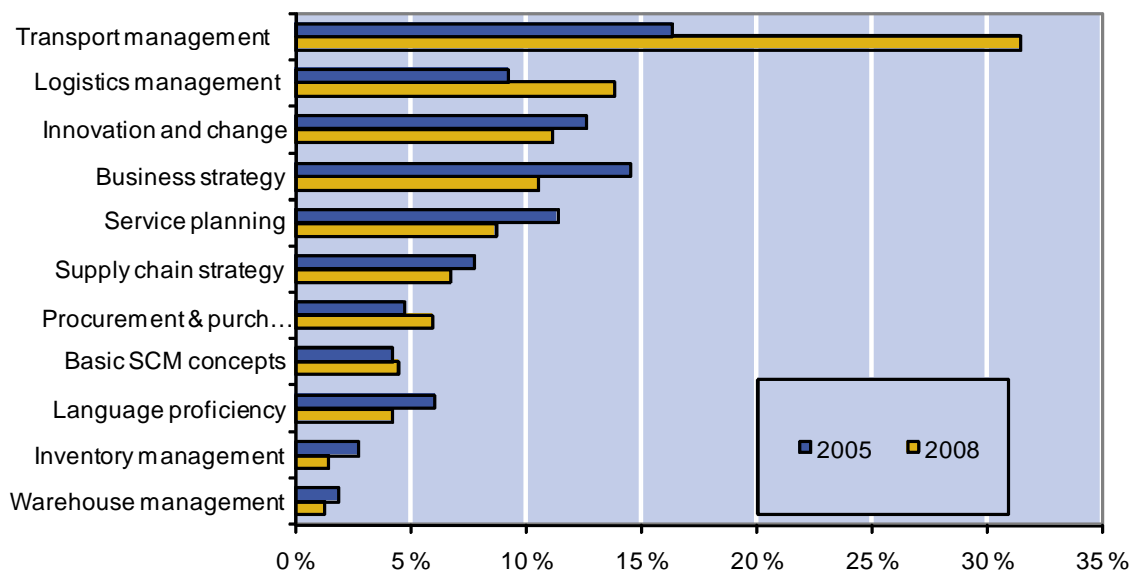


Figure 87 Most important development requirement in the logistic services, percent age of respondents, 2008: n=839, 2005: n=482. The respondent could select the personnel's most important development area whose level the enterprise would most benefit from raising.

In examining the transport companies alone, the management of transport is now even more plainly a more important development area than in 2005. In addition, basic skills in logistics management and business strategy exceed the 10% limit (Fig. 88).

From Fig. 89, it can be noted that in the freight-handling, warehousing, forwarding, freight-ing, postal and courier operations, the priorities have shifted from the area of service production planning to ‘basic issues’ (transport management, basic skills in logistics management, business strategy) as well as ‘business development’ (innovation and change management).

The business enterprises which operate in the management of logistic data and information systems in addition to other functions view the management of transport as well as that of innovations and change together with business strategy as more important development areas for expertise than before (Fig. 90).

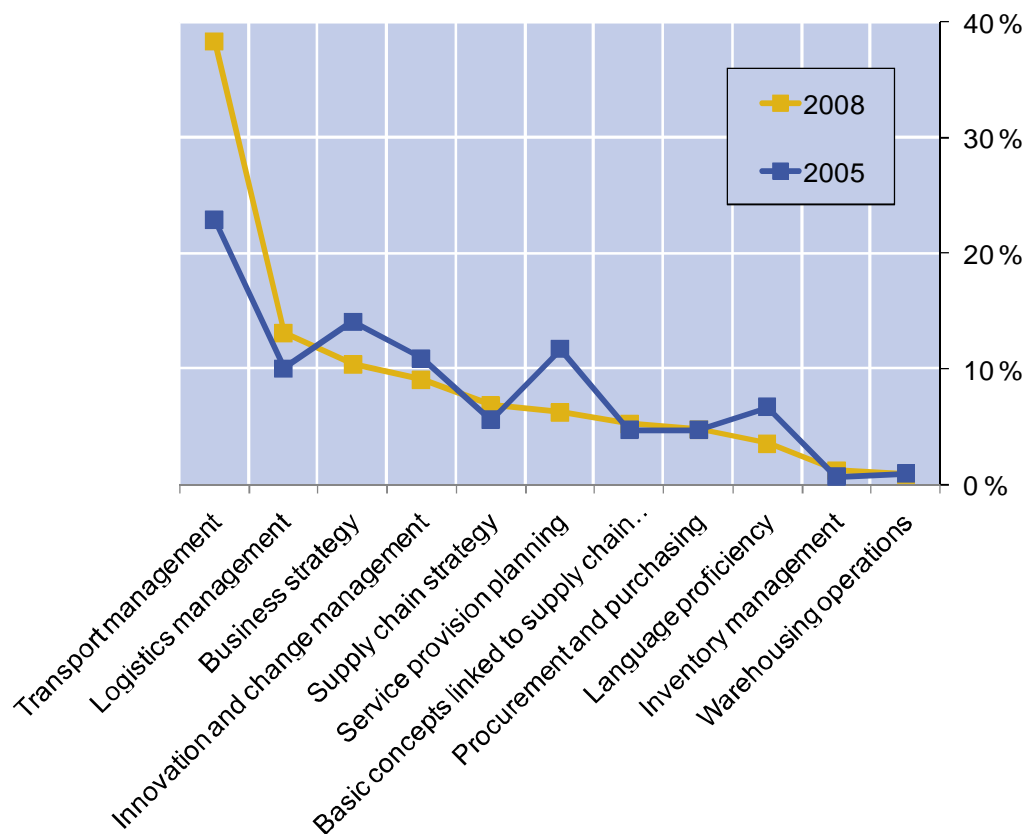


Figure 88 The most important development requirement for personnel in the transportation (road, rail, water and air traffic, percentage of respondents, 2008: n=563, 2005: n=246.)

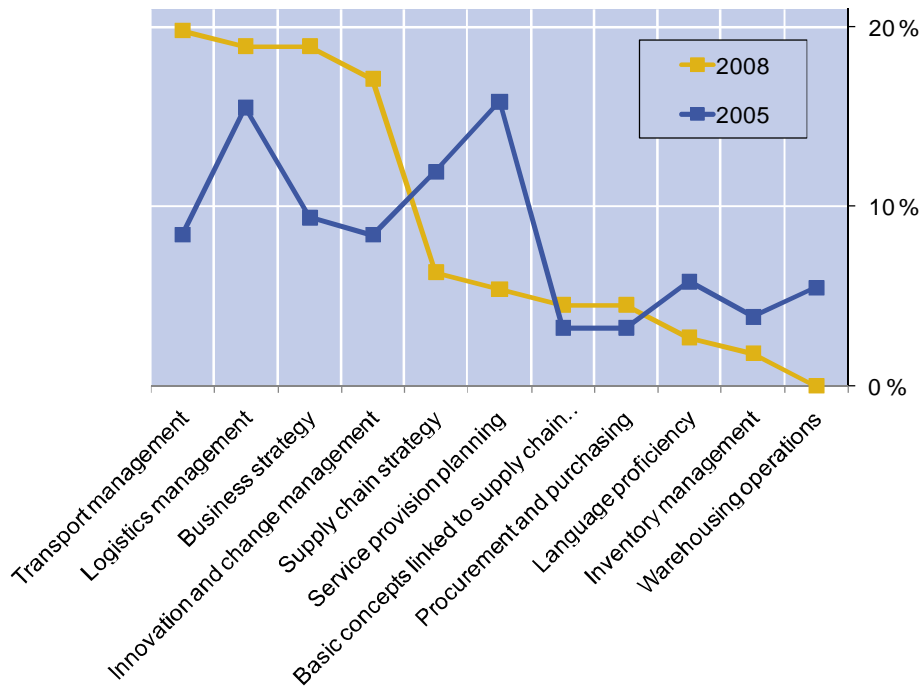


Figure 89 The most important personnel development requirement in freight-handling, warehousing, forwarding, freighting, postal and courier operations, % of respondents, 2008: n=111, 2005: n=104.

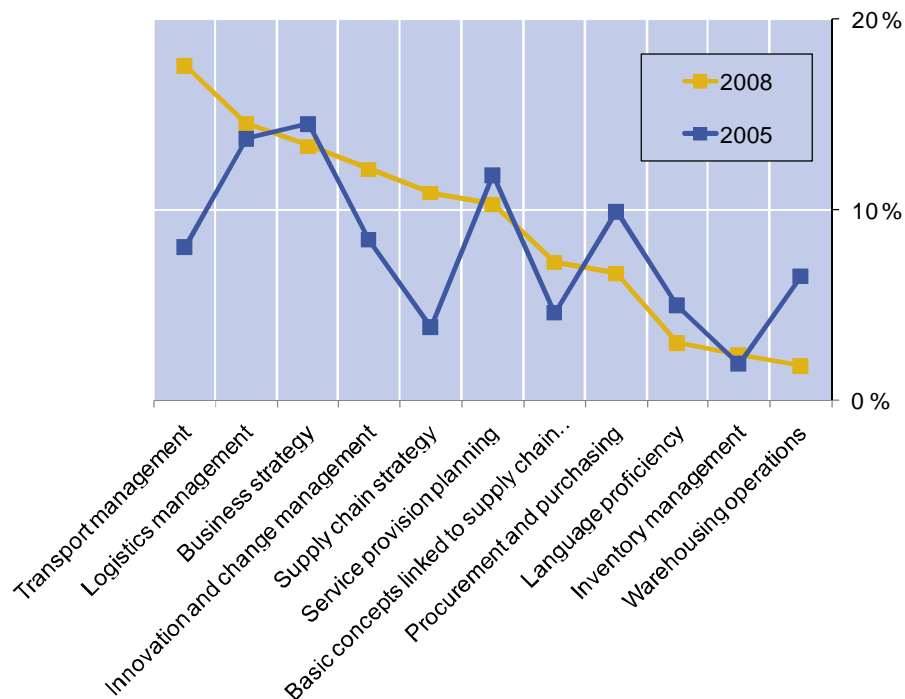


Figure 90 The most important personnel development requirement in the management of logistic data and information systems as well as in other operations, % of respondents, 2008: n=175, 2005: n=90.

In summary, it can be stated that the significance of transport management is even greater in all of the logistics service industry companies.

7.4.3 *Self-assessment and interest group assessment*

The logistics service enterprises were requested to assess the level of logistics expertise both from inside the company and from amongst their stakeholders (customers, subcontractors and competitors).

In Fig. 91, the responses have been compared with those from 2005 and 2008 from three various industries (road traffic-based freight transport, freight-handling and warehousing, forwarding and freighting). The results from all logistics services-based industries have been presented in Annex 22.

With regard to road traffic-based freight transport, no appreciable change can be seen. The assessments of one's own operations and expertise are positive. For the most part, a good or neutral mark regarding expertise was also given to the interest groups.

In freight handling and warehousing, the assessments of the development of one's own operations indicate the level has even declined, though the change is minimal. This may nevertheless be an indication that the standard demanded by customers has risen faster than the expertise level of the service companies.

The estimates appear to be similar amongst the competitors. Conversely, the quality level of customers and subcontractors is assessed as having risen.

In freight forwarding and freighting, there is certainty in the area of the high standard of expertise within the enterprise. In the level of expertise respective to customers, positive development has occurred, whereas the competence of competitors has even managed to decline.

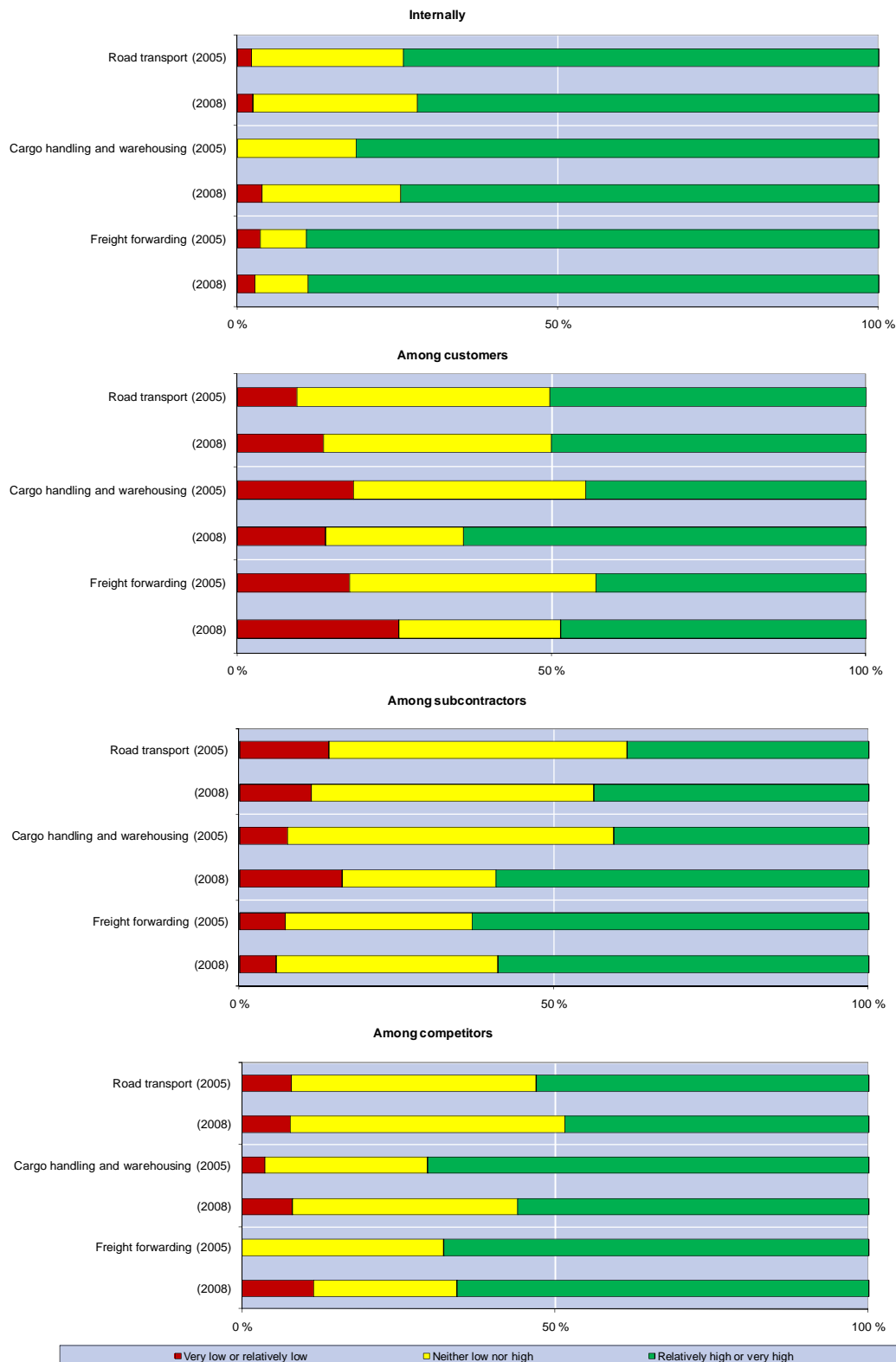


Figure 91 Assessments of logistics-based expertise inside the enterprise and within the interest groups in selected industries, % of respondents. Road traffic-based freight transport 2008: n=349, 2005: n=224; Freight-handling and warehousing 2008: n=49, 2005: n=54; Forwarding and freighting 2008: n=34, 2005: n=28.

Generally speaking, the logistics service industry relates positively to the level of their own expertise, but the general picture of this level with respect to the interest groups is also rather positive. Views concerning either a very or somewhat low level of logistics competence arise the most in the evaluations of the customers. One's own expertise is also regarded as better than that of the competitor.

7.5 Operational prerequisites in the site locality

Representatives of the logistics service enterprises were requested to assess the prerequisites of the company's base locality from the perspective of

- general business activity,
- placing of production,
- logistics functionality/effectiveness,
- traffic infrastructure and
- placing of competitors.

The percentage share of the responses "good" or "very good" of all responses in the province are presented in Fig. 92. Ten or less responses were gained from Åland, East Uusimaa and for one question also from Kainuu, and have not been included in the comparison due to the small amount of data.

Fig. 93, on the other hand, presents the change in the response percentage share of responses "good" or "very good" by province, compared to the data in Logistics Report 2006. The results of both figures present the respondents' opinions on the level of the entire province and the absolute differences between the various classes are small, so inconsistencies are possible.

Fig. 93 a) presents the views of logistics service providers on the operational prerequisites of their company's base locality from the point of view of general business activity. The logistics enterprises of Uusimaa and Kymenlaakso are most satisfied with the location of their businesses. On average, approximately 85% regarded their operational prerequisites as either good or very good. The result tends to be explained by the fact that Finland's main ports¹⁰ are located in these provinces. Those most dissatisfied with the operational prerequisites of their base localities from the business perspective are the North Karelian logistics businesses, of which only one-fourth regard as good or very good.

With regard to *logistics effectiveness*, the most dissatisfied with their locality are the respondents from East Finland as well as Ostrobothnia and Central Ostrobothnia. The majority regarded the prerequisites *from the view of traffic infrastructure* as good (clearly over half of each province's responses "good" or "very good") in South Finland, Pirkanmaa, South Ostrobothnia and Lapland.

As a rule, South Finland's logistics enterprises are more satisfied with the operational prerequisites of their location than the logistics service providers elsewhere in the country. The same concerns the prerequisites from the perspective of the *placing of competitors*

¹⁰ as measured at TEU in 2008. Source: Statistics Finland.

The responses of the logistics service enterprises on the operational prerequisites of their base localities were compared with the results of Logistics Report 2006. The data for this report is from 2008, while the previous one describes the situation in 2005. Fig. 93 presents the change in the share in percentage units of those that regard the operational environment prerequisites as good or very good.

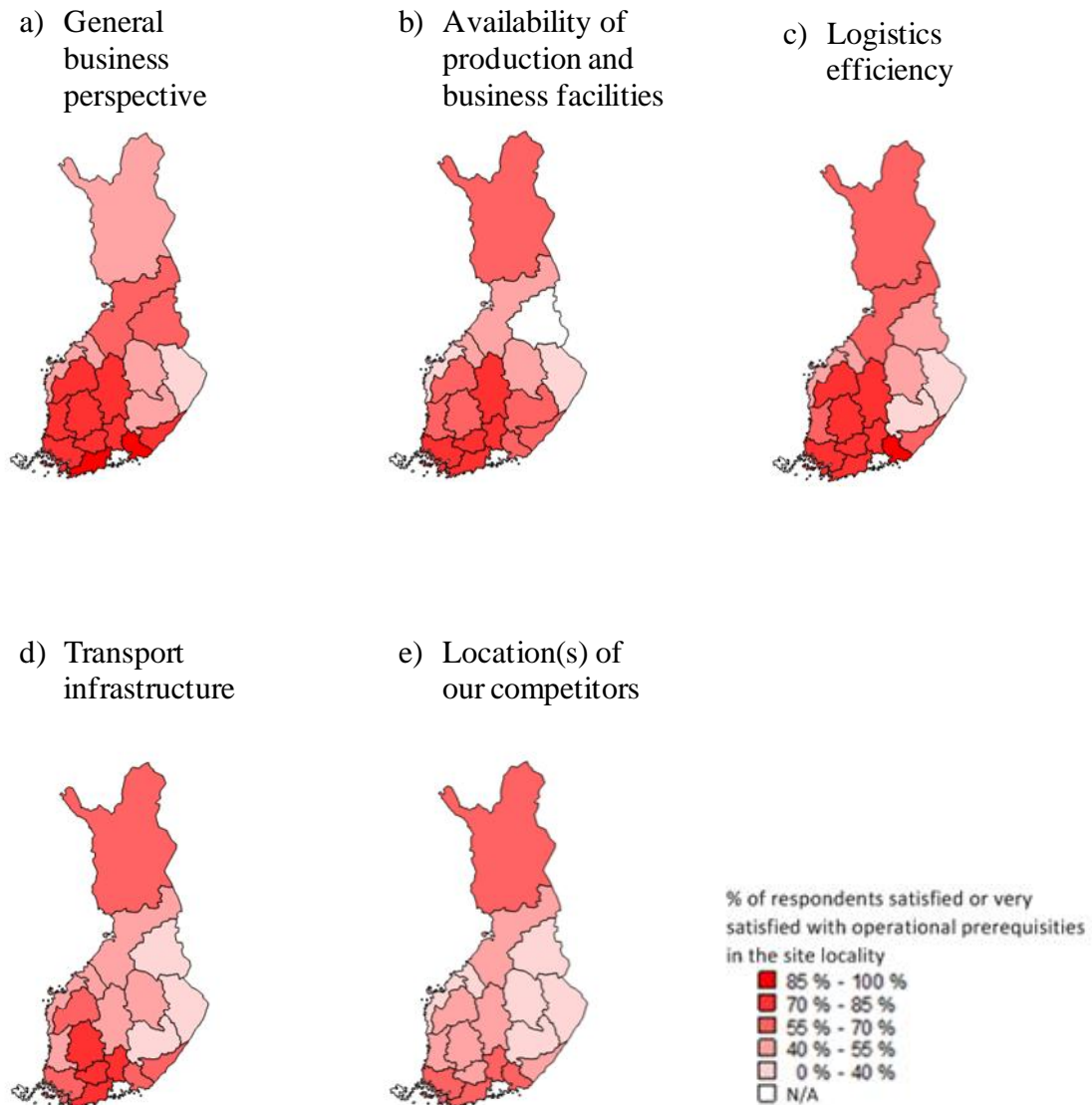


Figure 92 Comparison of the logistics service enterprises' operational prerequisites on a province-by-province basis, a) n=862, b) n=775, c) n=825, d) n=819, e) n=815. Grid: MapInfo.

In a large part of the country, the logistics service enterprises regarded the operational prerequisites of their locality as poorer compared to the previous report; the exception being Uusimaa and its nearby provinces. In relation to general business activity, the respondents' views were more pessimistic than in 2005. In particular, the prerequisites in East and North Finland were clearly seen as worse in this relation. Uusimaa and Kymenlaakso are an exception, as their prerequisites for business operations were currently considered somewhat better.

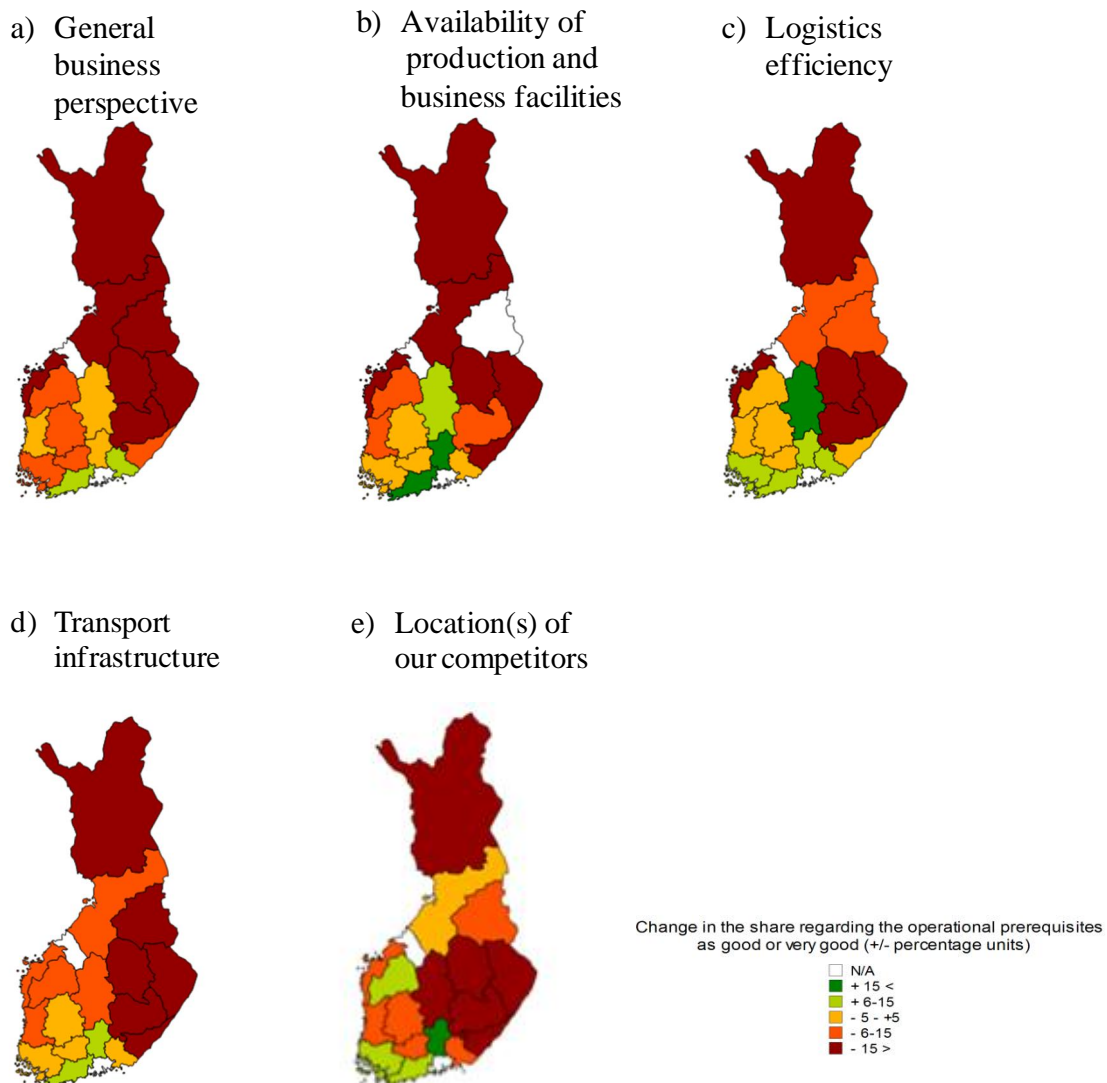


Figure 93 Change in the operational prerequisites of the logistics service enterprises from 2005 on a province-by-province basis. 2008: a) n=862, b) n=775, c) n=825, d)n=819, n=815. Grid: MapInfo.

Base locality operational prerequisites from the perspective of the *placing of production* were regarded, particularly in East and North Finland as well as on the west coast, as poor by reference to the circumstances in the previous report. The prerequisites in relation to the placing of production had nevertheless changed, according to the responses, in a better direction in Central Finland, Päijät-Häme and Uusimaa. From the perspective of *logistics effectiveness*, the prerequisites were regarded in South and Central Finland better than in the previous report, but worse in East and North Finland.

Compared to the results of Finland State of Logistics 2006 report, the opinions of logistics service providers on the level of *logistics infrastructure* have become more critical, especially in East and North Finland. The exception is Uusimaa and Päijät-Häme, where a larger number

of the respondents were more satisfied with their location from the perspective of logistics infrastructure than previously.

With regard to the *location of competitors*, the view of the respondents from the logistics enterprises showed more pessimism than before in most of the provinces. The exceptions are Southwest Finland and Uusimaa in addition to Päijät-Häme and South Ostrobothnia, in which the share of satisfied responses had risen from 2005.

7.6 Risks to the future of the logistics service enterprises

Respondents in the logistics service provision were asked what, in their view, the biggest risks to the business environment are likely to be during the next five years. From the alternatives given, the respondents were requested to choose the largest as well as second and third largest risks.

The clearly largest risk was viewed to be the deterioration in demand: this alternative had been chosen by over 40% of the respondents. The rise in costs as the most important threat in the future was regarded as such by over one-fifth, and the lack of availability of staff by slightly over one-tenth. The tightening of competition was also considered the most significant threat by close to 10% of the respondents.

The same threats collected the largest number of responses also in enquiring about the second and third largest risks in the future. Almost one-third of the respondents considered the rise in costs as the second largest threat, and almost one-fifth the tightening of competition as well as the lack of availability of capable personnel. As the third greatest risk, the tightening of competition and the lack of availability with regard to personnel each gathered approximately 20% of the responses. The decline in productivity is also regarded as a significant threat during the next five years.

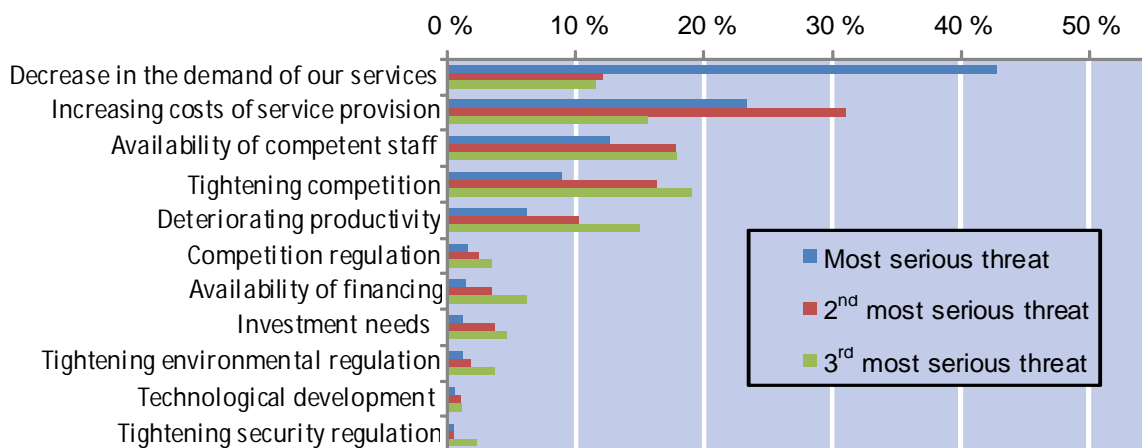


Figure 94 Logistics enterprises' perceived risks according to enterprise size (% of respondents), greatest risk n=867, 2nd greatest risk n=863; 3rd largest risk n=853

In examining the most important risks as perceived by the logistics enterprises more closely according to enterprise size (Fig. 95), it can be noticed that, of the large- and medium-sized logistics service companies' representatives, a larger share than the small and micro-enterprises' respondents regard deterioration in demand as the most considerable risk in the future. Regarding the tightening of competition, the least concerned are the respondents from the large enterprises.

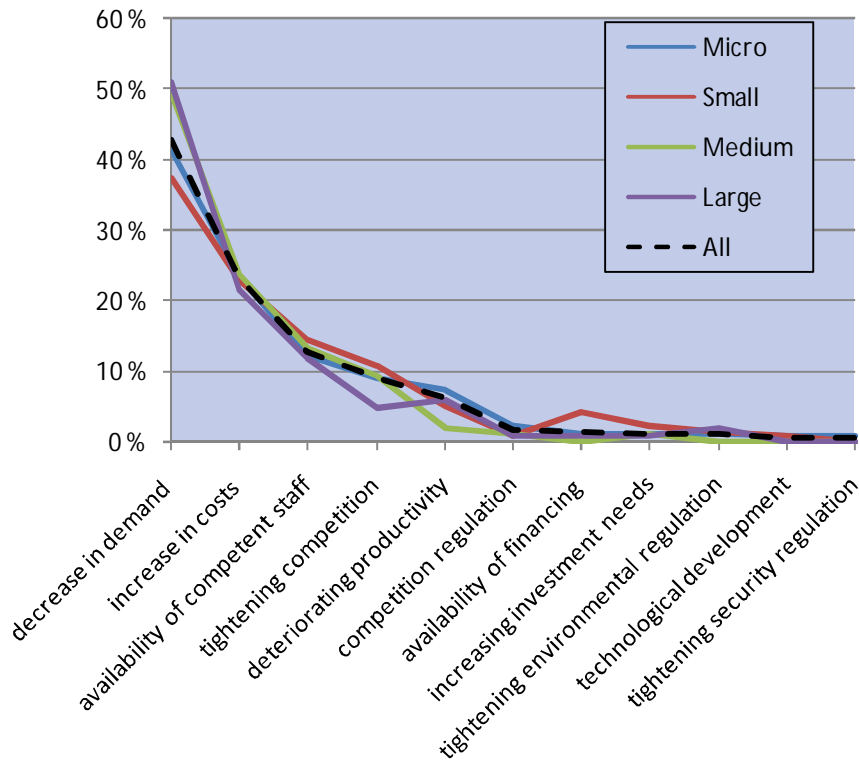


Figure 95 Greatest risks to logistics enterprises according to size of enterprise (% of respondents), Micro n=529, Small n=139, Medium-sized n= 97, Large n=102

A larger part of the small logistics service companies than the other sizes regarded the most important risk to be accessibility to financing. Decline in productivity was perceived as the largest risk by fewer of the medium-sized firms responding than by the other sizes of enterprises. With respect to the other business environment-based future risk scenarios, the perspectives of the variously sized logistics service companies were congruent.

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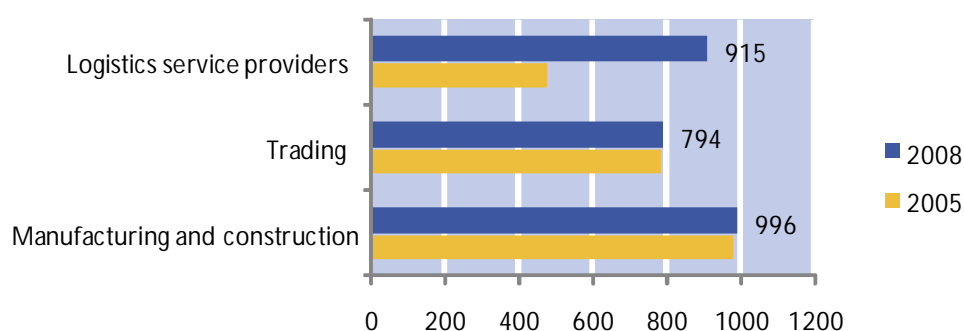
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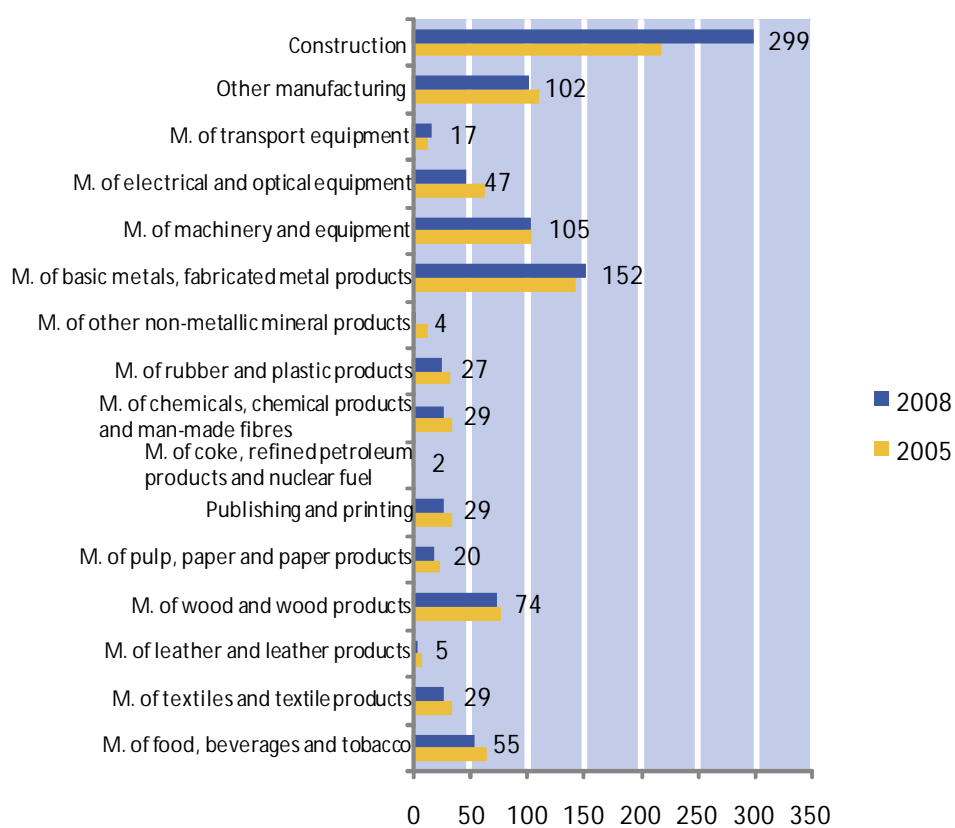
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ANNEXES

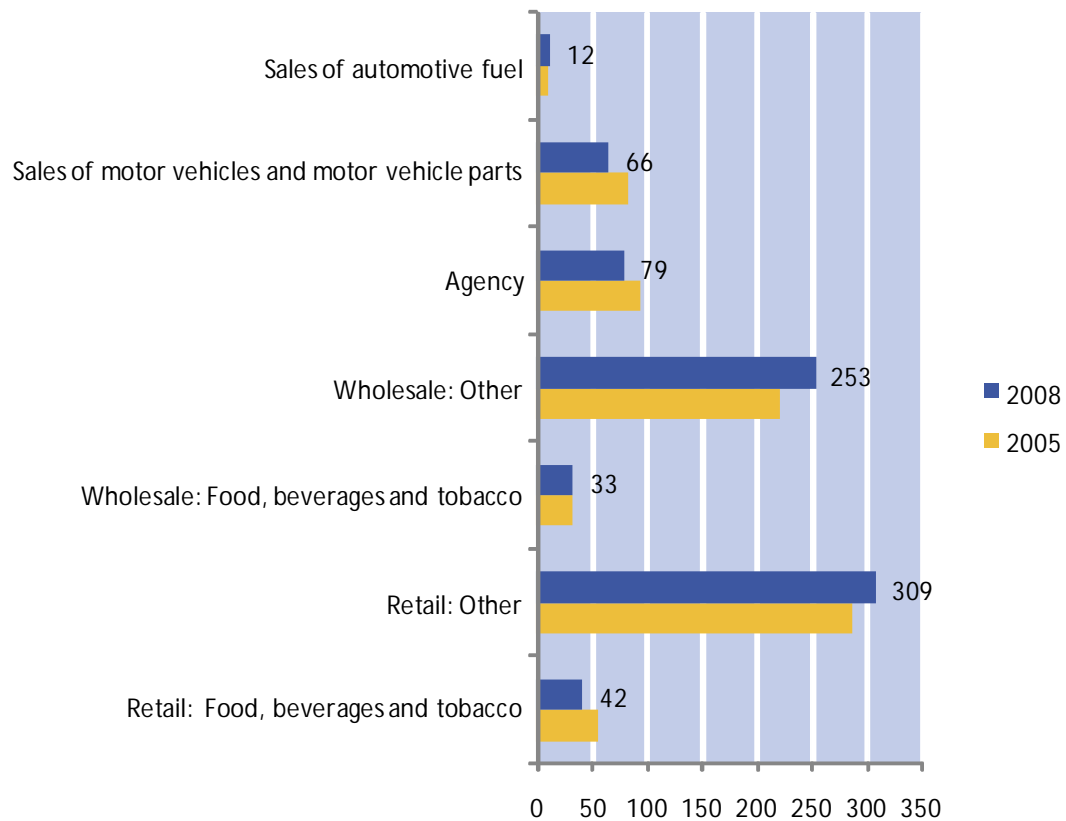
Annex 1 Respondent enterprises according to main industry



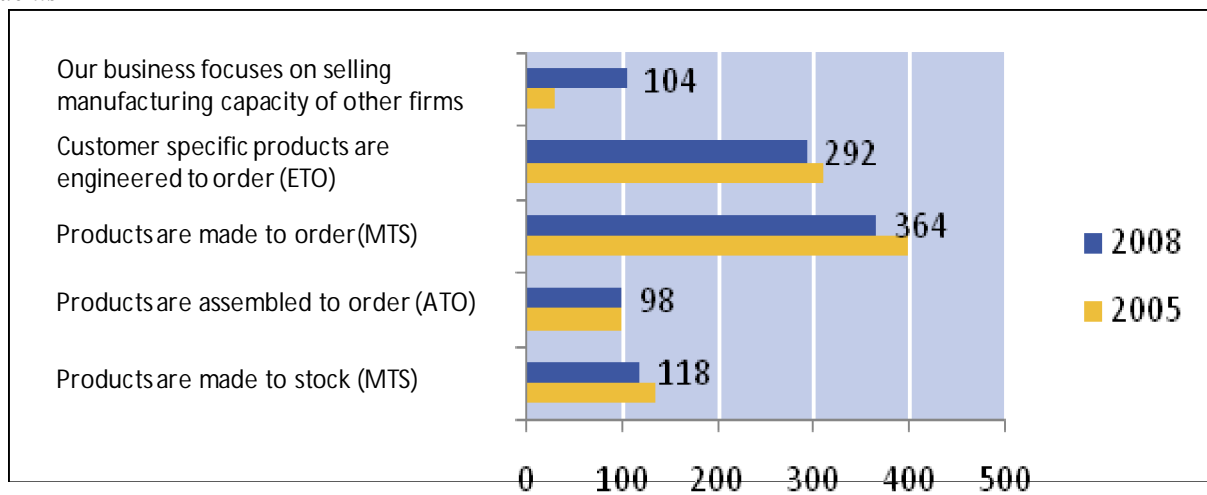
Annex 2 Manufacturing/construction business enterprises according to industry



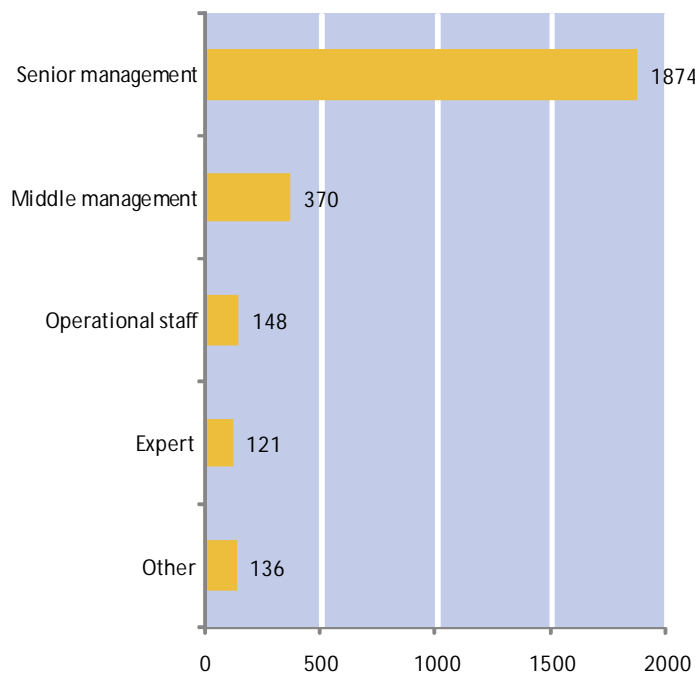
Annex 3 *Trading-based business enterprises according to industry, number of respondents*



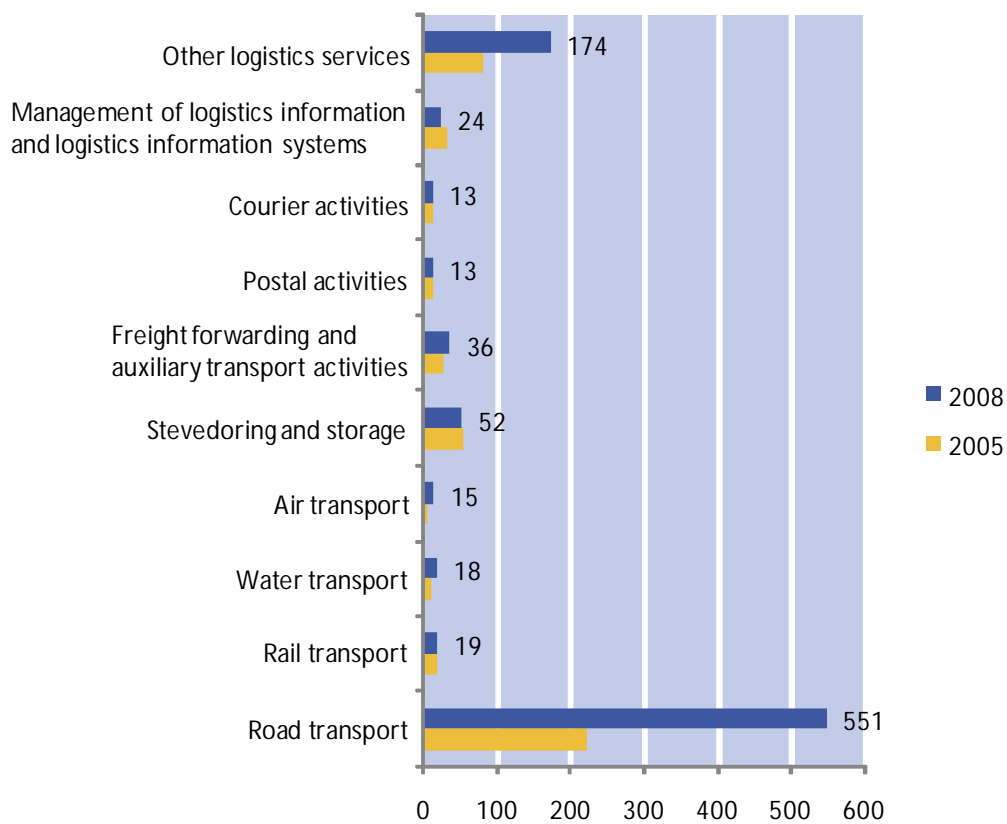
Annex 4 *Manufacturing/construction business enterprises according to production mode, number of respondents*



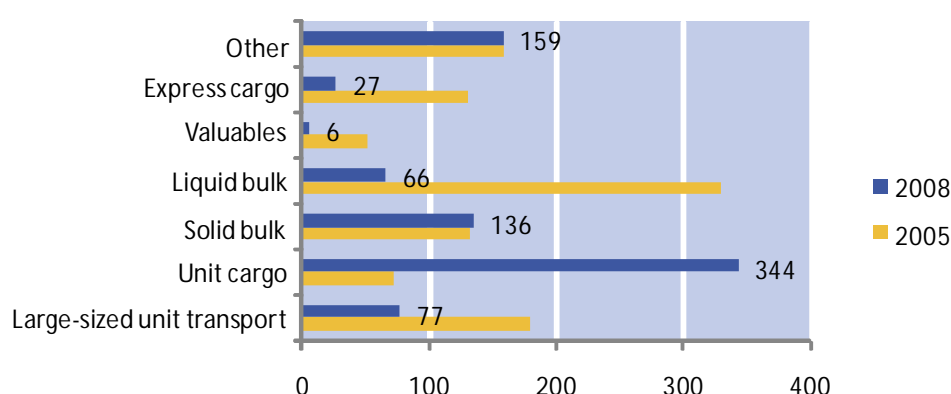
Annex 5 *Respondent's position in the business enterprise, number of respondents*



Annex 6 *Logistics enterprises according to industry, number of respondents*



Annex 7 *Logistics service enterprises according to freight type, number of respondents*

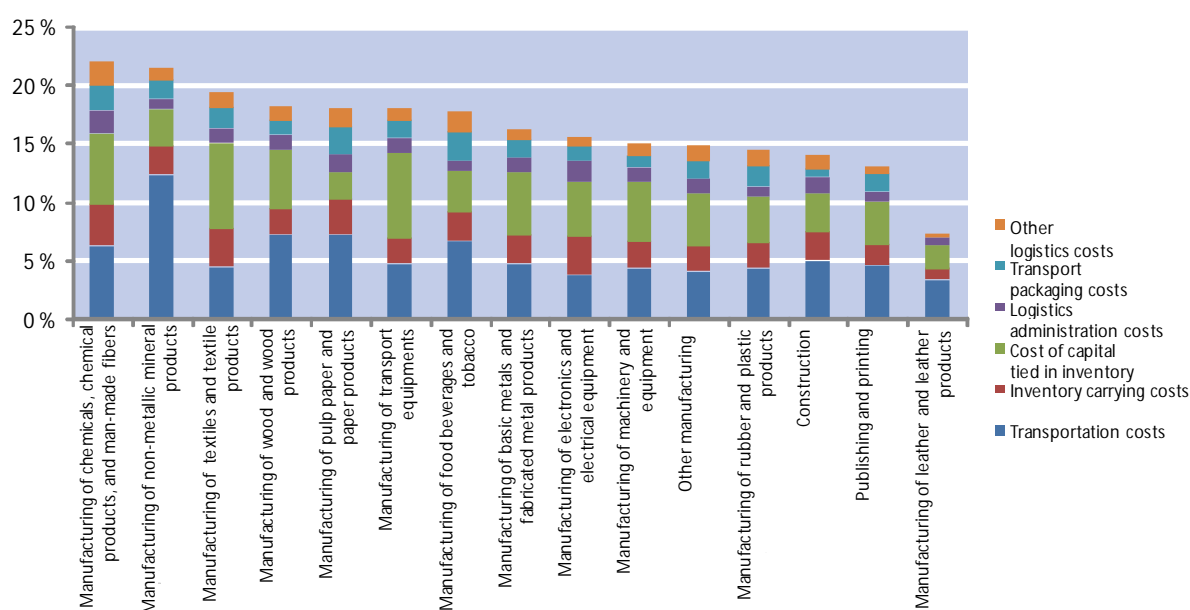


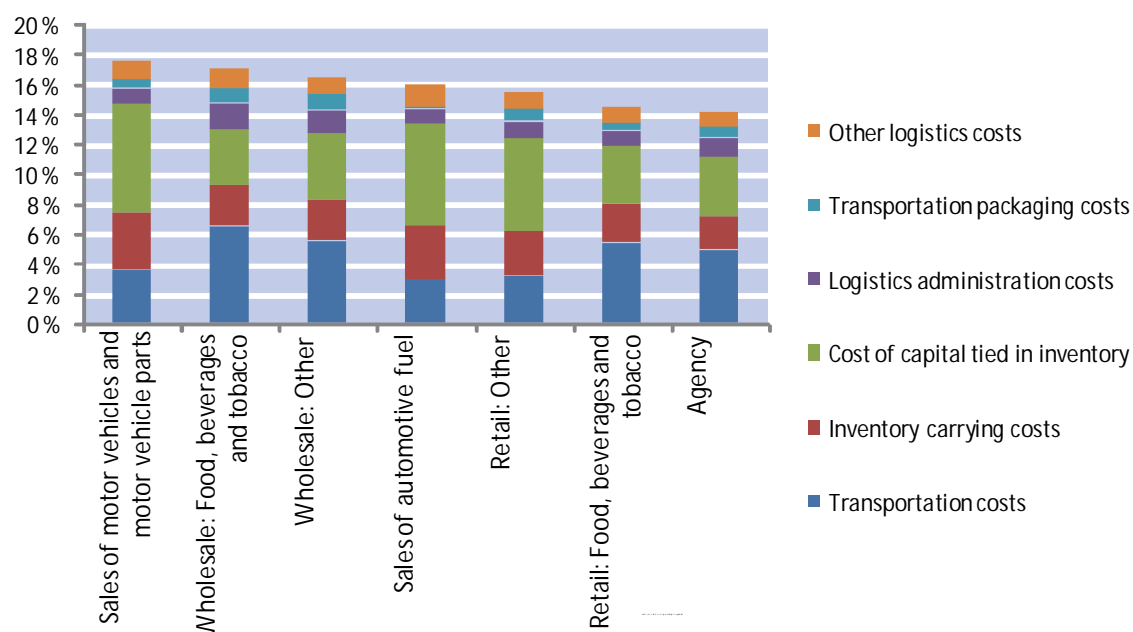
Annex 8 *Logistics costs in the logistics reports-based prices and in 2008 prices*

Logistics costs billion € (current prices)					
	1990	1995	2000	2005	2008
Transport costs	6.0 (44%)	6.0 (46 %)	8.0 (45 %)	9.5 (36 %)	15.4 (44 %)
Warehousing costs	3.9 (28%)	3.4 (25 %)	4.4 (25 %)	6.2 (24 %)	7.9 (23 %)
Inventory carrying costs	3.0 (22%)	2.9 (21 %)	4.4 (25 %)	7.2 (27 %)	8.9 (26 %)
Logistics administration costs	0.8 (6%)	1.0 (7 %)	1.2 (5 %)	3.5 (13 %)	2.5 (7 %)
Total	13.7	13.3	18	26.4	34.7

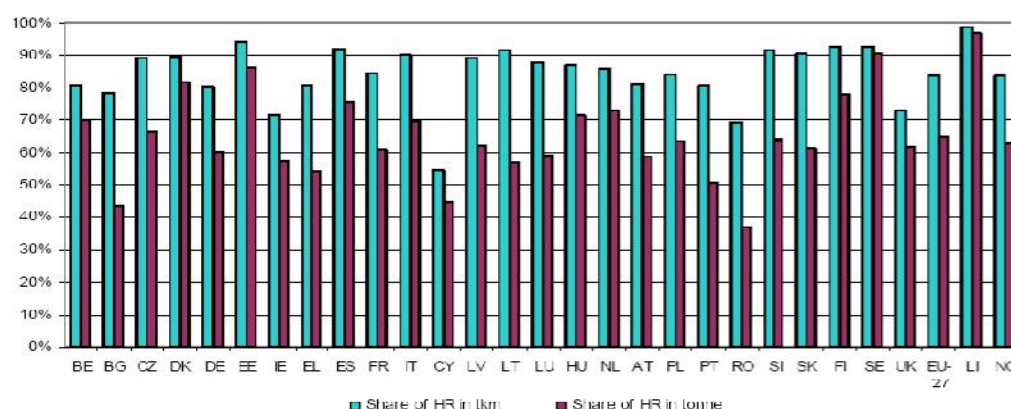
Logistics costs billion € (2008 prices)					
	1990	1995	2000	2005	2008
Transport costs	8.9 (44%)	7.5 (46%)	9.3 (45 %)	10.1 (36%)	15.4 (44 %)
Warehousing costs	5.7 (28%)	4.2 (25%)	5.1(25%)	6.6 (24%)	7.9 (23 %)
Inventory carrying costs	4.5 (22%)	3.5 (21 %)	5.1(25%)	7.7 (27%)	8.9 (26 %)
Logistics administration costs	1.3 (6%)	1.3 (7%)	1.4 (5%)	3.7 (13%)	2.5 (7 %)
Total	20.5	16.4	20.9	28.1	34.7

Annex 9 *Industry's average logistics costs according to industry and cost components*

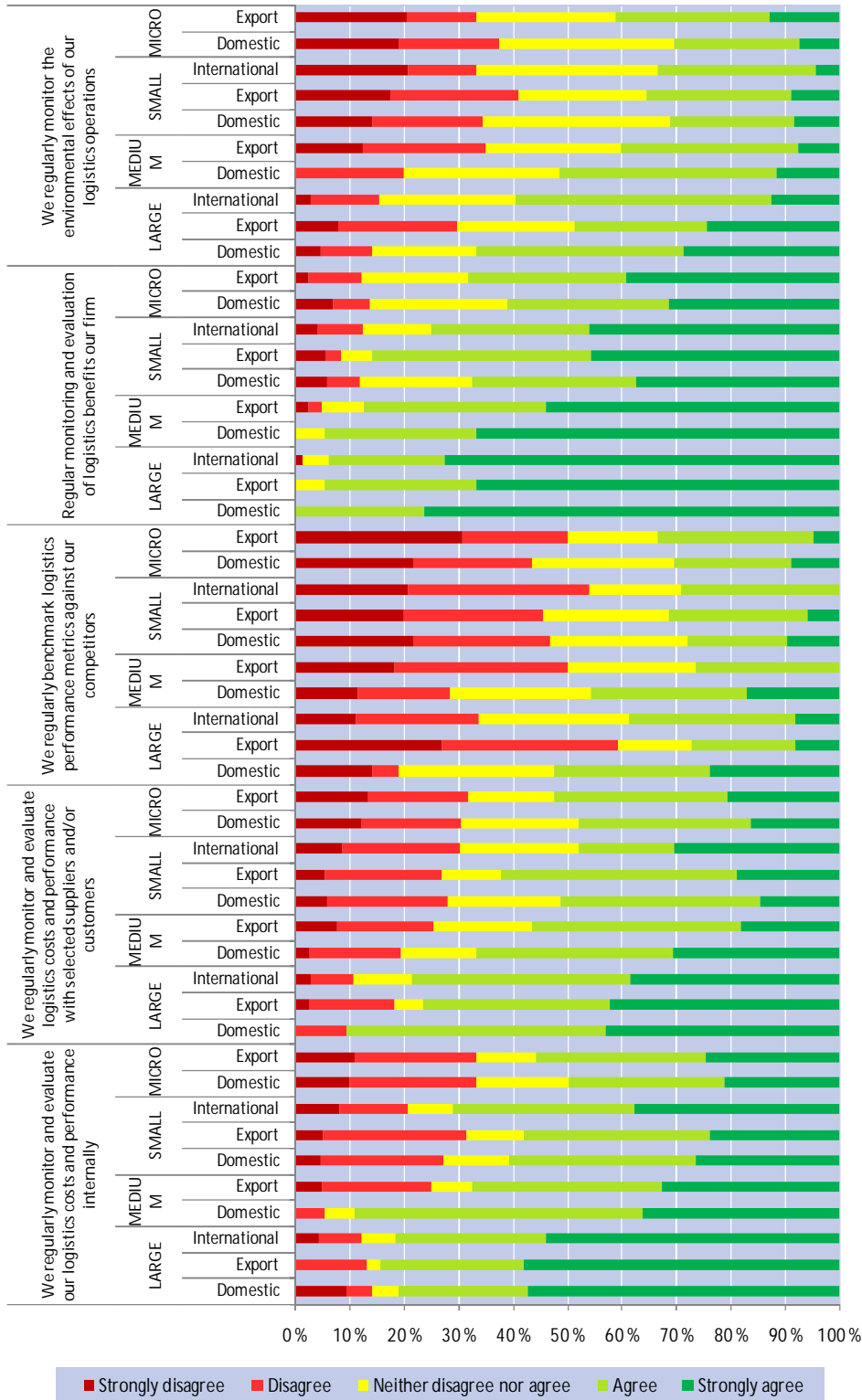


Annex 10 Industry's average logistics costs according to industry and cost components

Annex 11 Logistics industry-based key figures and comparison with other countries in the Baltic region (Eurostat A and B)

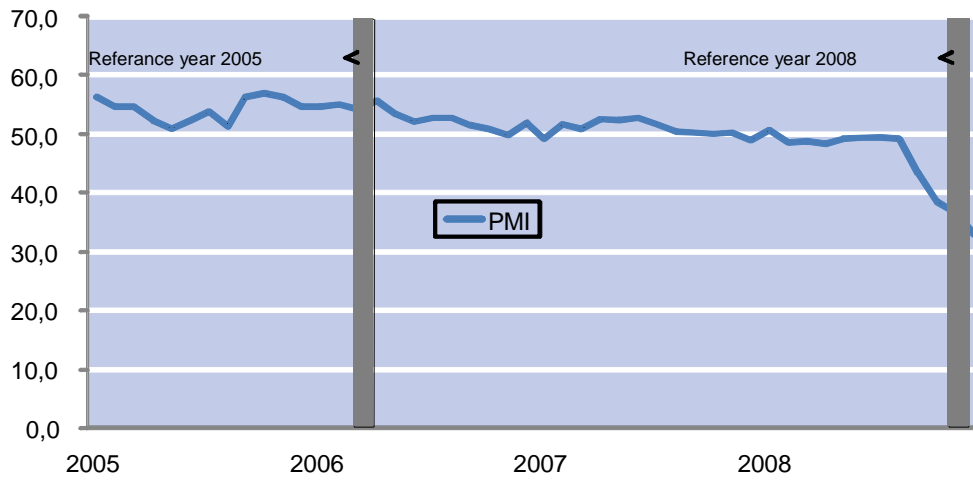
	EU27	DK	DE	EE	PL	FI	SE
Number of employees	8 759 358	132 768	1 274 149	35 655	557 498	114 758	221 038
Number of companies		13 444	84 132	3 109	131 889	22 492	31 056
Turnover m€			181 460	3 245	22 922	17 432	41 242
Domestic haulage 1000M ton km.	1 271	12	251	2	59	25	35
International haulage 1000M ton km.	617	10	79	4	16	4	4
Rail transport haulage 1000M ton km.	435	2	107	10	54	11	22
Sea transport, import (1000 ton)		47 035	168 834	4 164	16 219	51 211	84 653
Sea transport, export (1000 ton)		41 940	110 575	40 894	38 250	41 843	75 208
Number of commercial aircrafts	4 312	111	694	18	74	90	111
Number of freight cars in rail transport			158 247	18 971	75 164	11 216	13 649
Number of freight vehicles in road trans. (1000)	32 249	509	2 804	93	2 393	376	480
Mercantile fleet, national flag		256	392	27	23	79	152
Mercantile fleet, foreign flag		389	2339	67	17	42	173

Graph 2: Share of hire or reward transport in each country, 2006 - % in tonnes and tkm


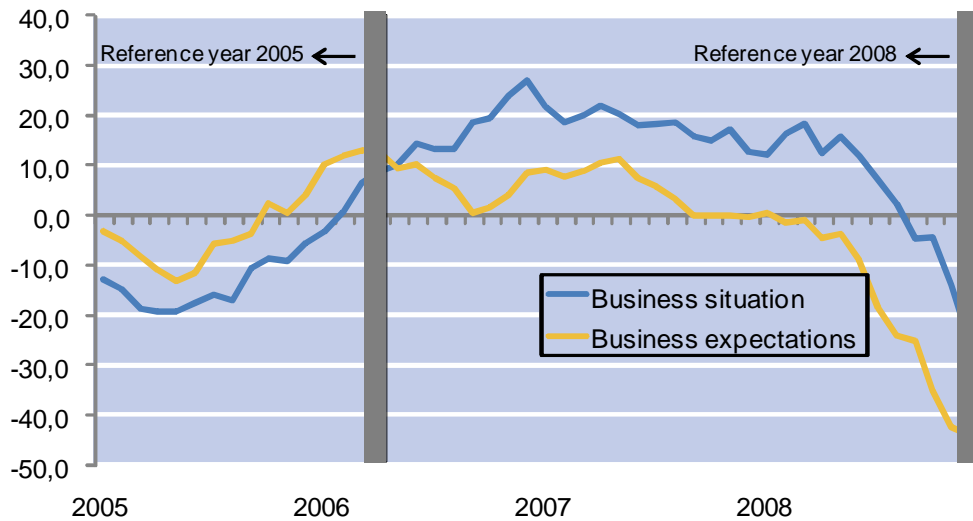
Annex 12 *Monitoring and utilization of manufacturing and construction enterprises' key figures according to degree of enterprise internationality and size*



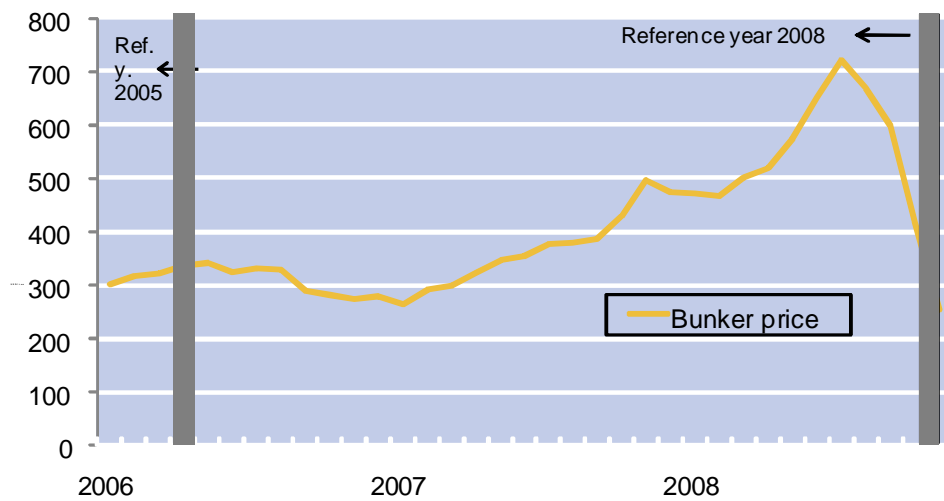
Annex 13 *PMI (Purchasing Manager Index) 2005-2008. (Institute for Supply Management)*



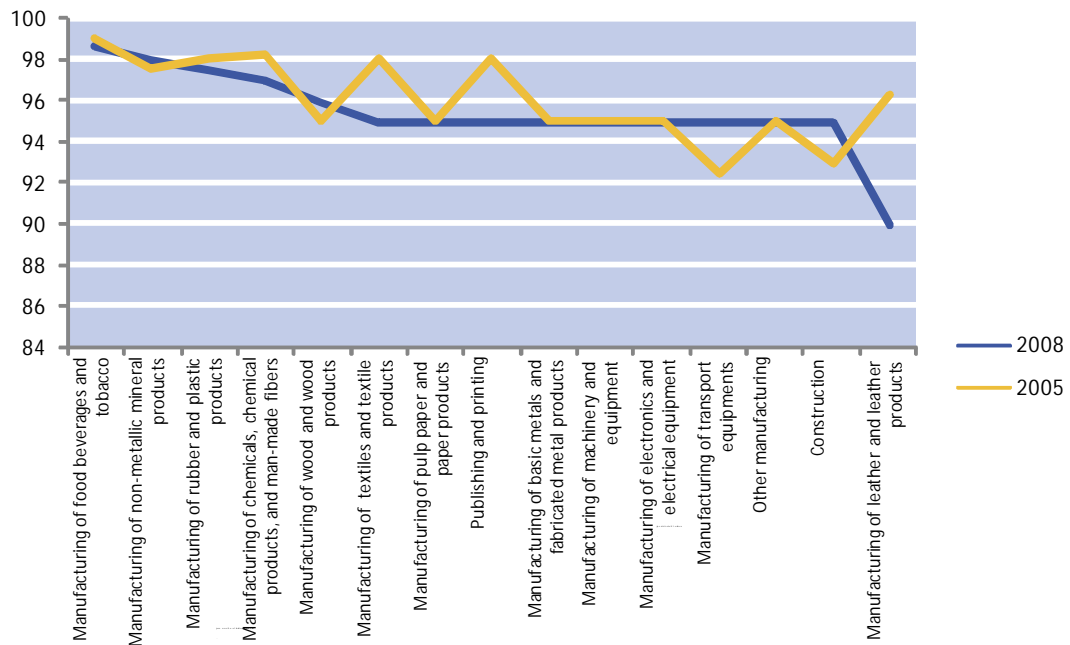
Annex 14 *CESifo Group IFO Index 2005-2008 (CESifo Group)*



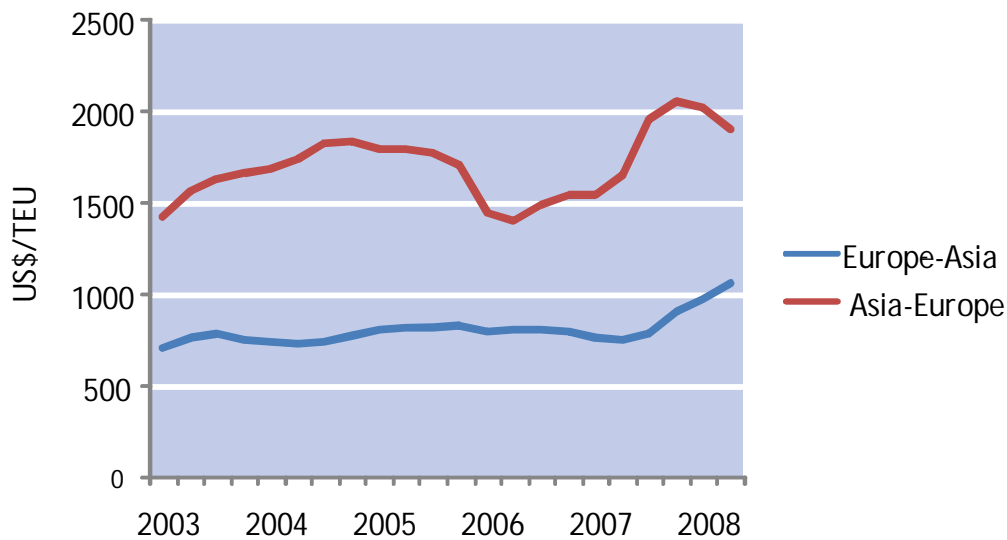
Annex 15 *Marine traffic bunker prices 2005-2008 (MOL Shipping Research)*



Annex 16 *Share (%) of perfect order fulfilment in manufacturing enterprises in 2005 and 2008*



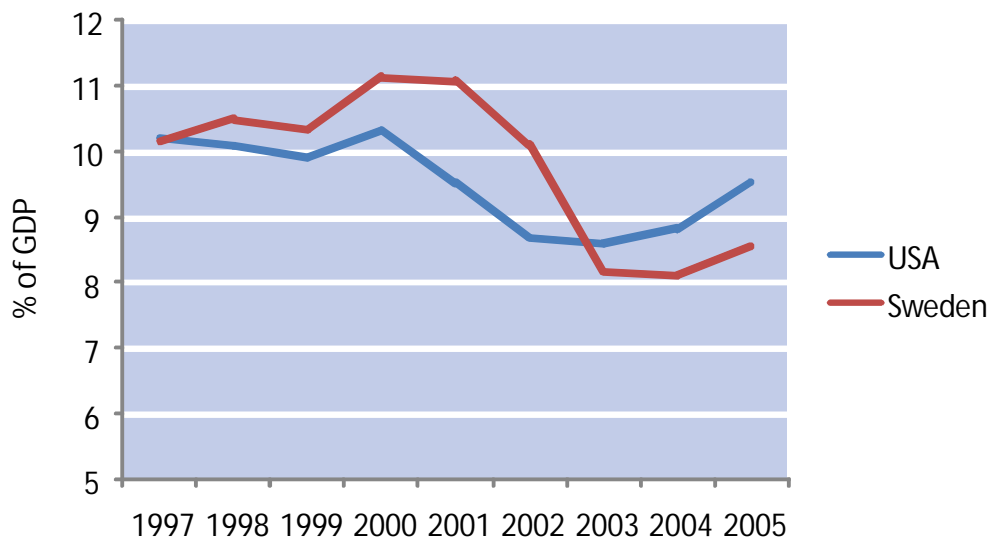
Annex 17 *Container price development 2003-2008 USD/TEU in Europe-Asia Traffic (UNCTAD)*



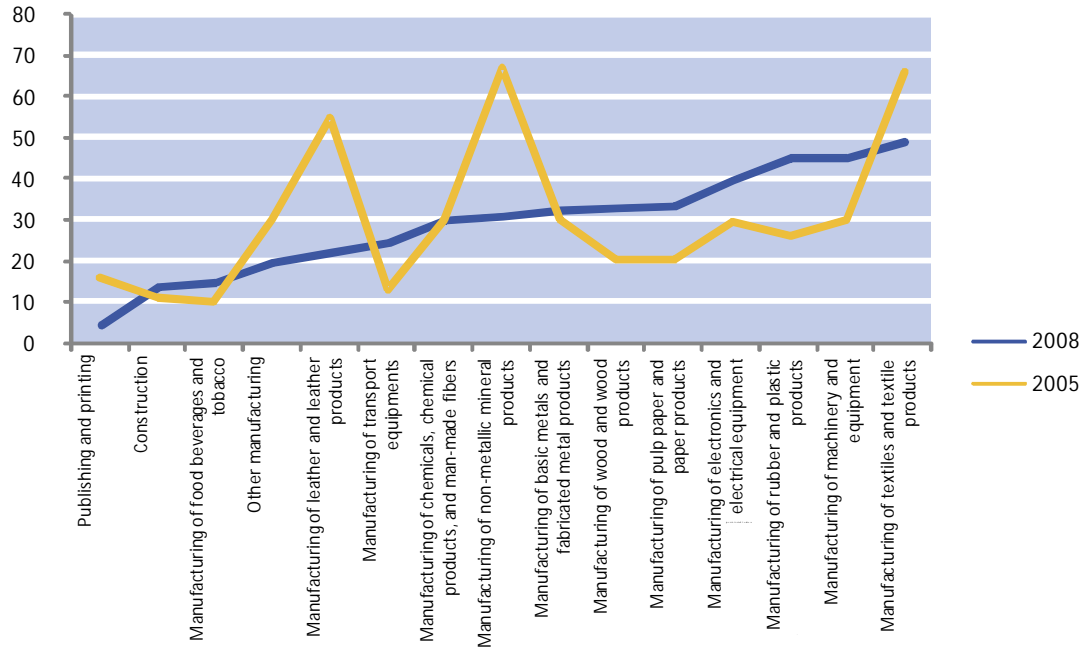
Annex 18 *Baltic Dry Bulk Index. (Bloomberg)*



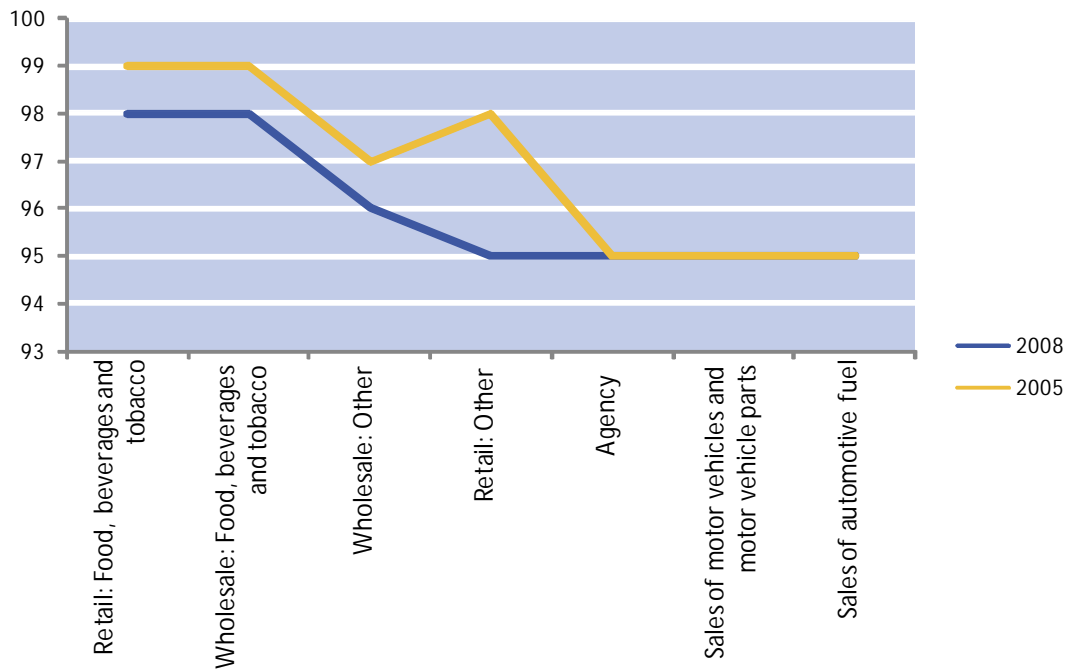
Annex 19 *The development of logistics costs in Sweden and in the US as a share of the GDP, calculated from national accounting statistics. (Elger et al. 2008)*



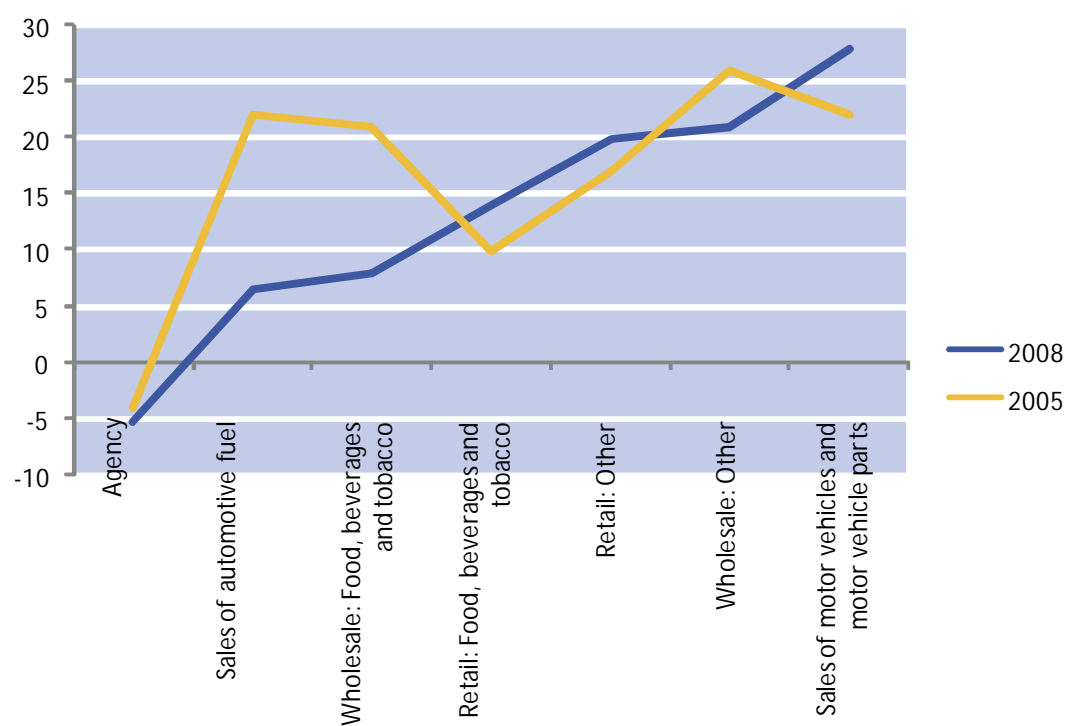
Annex 20 *Cash-to-cash cycle time (days) in manufacturing enterprises in 2005 and 2008*



Annex 21 *Share (%) of perfect order fulfilment in trading enterprises in 2005 and 2008*

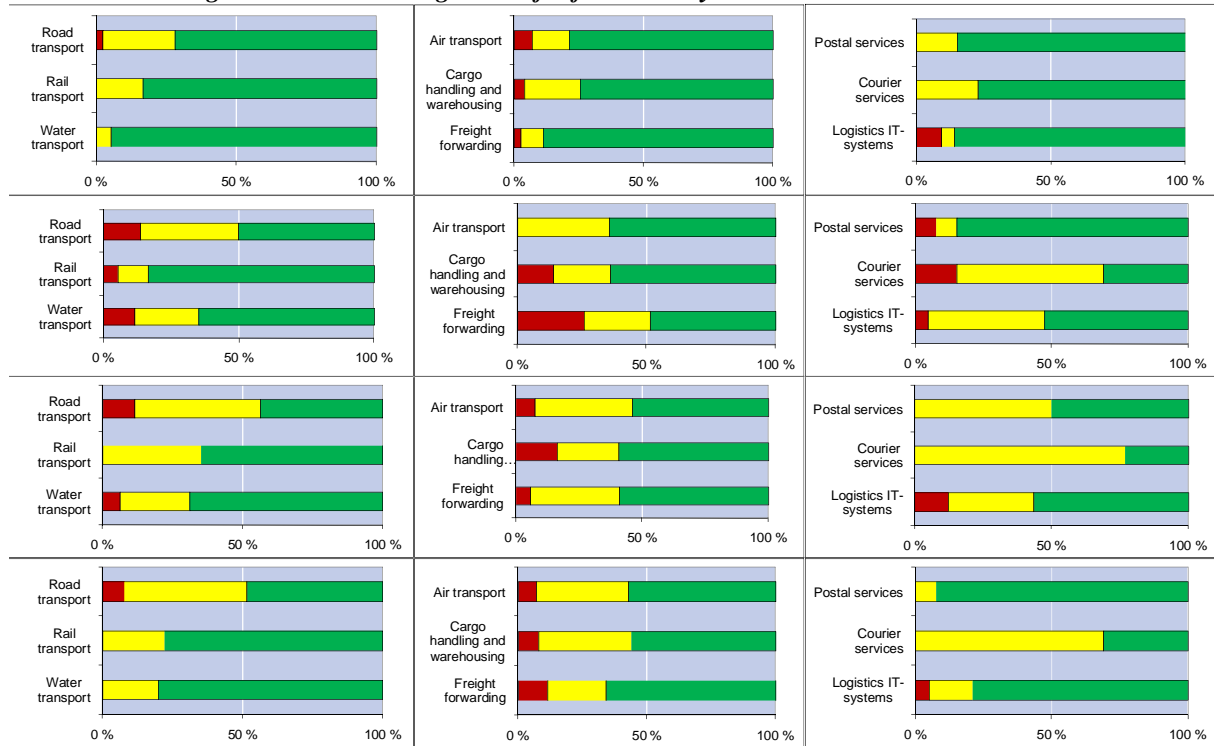


Annex 22 *Cash-to-cash cycle time (days) in trading enterprises in 2005 and 2008*



Annex 23

Assessments of logistics service enterprises regarding logistics expertise inside the enterprise and in the interest groups according to industry, % of respondents, Road traffic-based freight transport n=349, Rail traffic n=17, Water traffic n=15, Air traffic n=13, Freight-handling and warehousing n=49, Forwarding and freighting n=34, Postal n=12, Courier operations n=13, Logistic data and management of information systems n=16



Annex 24 Map of Finland